
I-205 Strategic Corridor Pre-Design Study

ACCESS POINT DECISION REPORT

Prepared for:

Southwest Washington Regional Transportation Council
Washington State Department of Transportation
City of Vancouver

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Executive Summary

PROJECT DESCRIPTION

The purpose of this access request is to implement improvements along I-205 between SR 14 and NE 83rd Street, including the provision of new access locations and the modification of existing access locations. The project study area is bounded by NE 83rd Street (Padden Parkway) on the north, the Columbia River on the south, NE 136th Avenue on the east and Andresen Road on the west. Figure E.1 shows the vicinity of the proposed project, and Figure E.2 shows the study area.

The recommended alternative analyzed in this Access Decision Report includes the following:

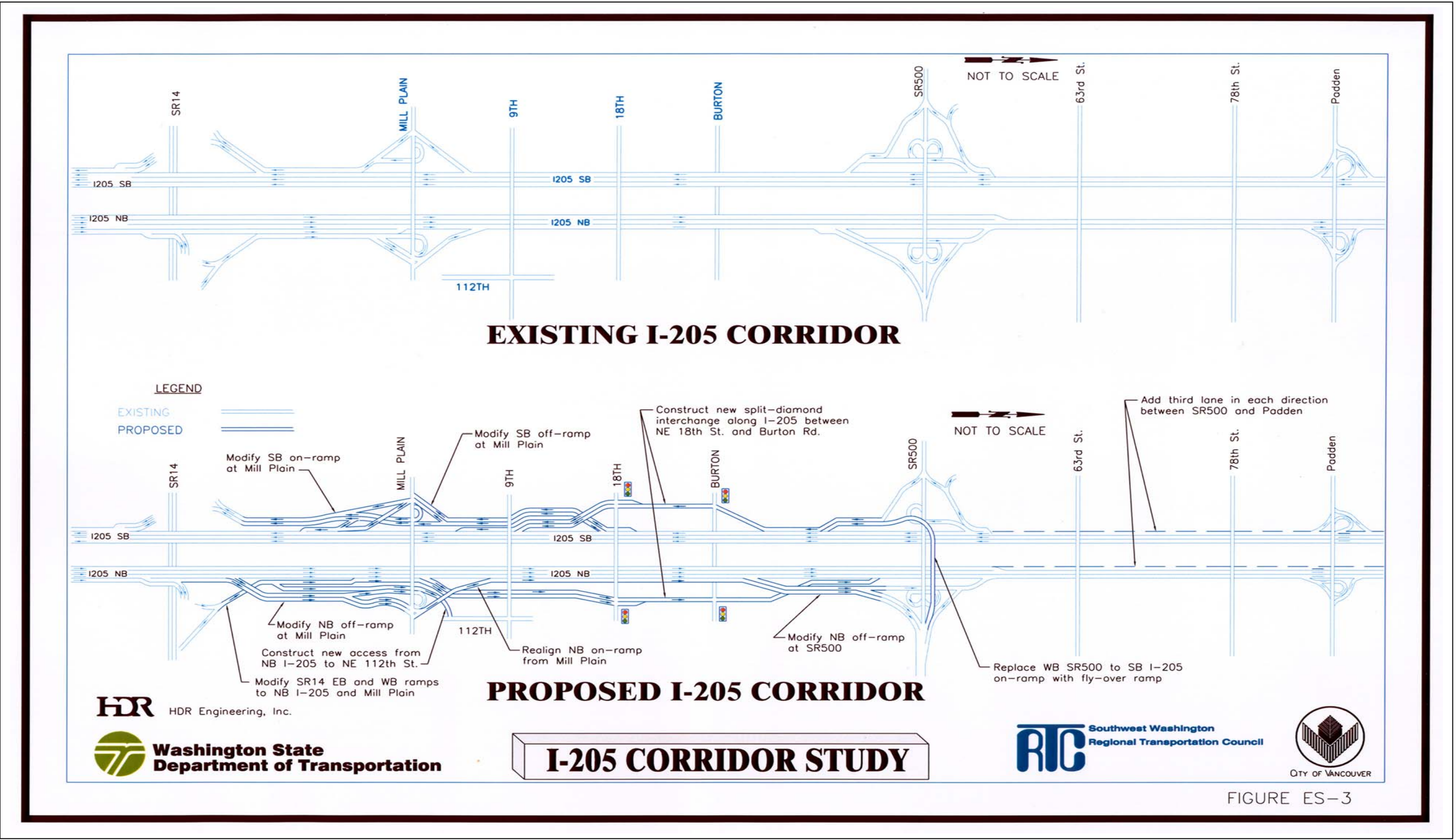
- Modifications to the existing Mill Plain Boulevard interchange:
 - Modifications to the I-205 northbound off-ramp at Mill Plain.
 - Realignment of the I-205 northbound on-ramp from Mill Plain.
 - Modifications to the I-205 southbound off-ramp at Mill Plain.
 - Modification to the I-205 southbound on-ramp from Mill Plain.
- Modifications to the existing SR 500 interchange:
 - Modifications to the I-205 off-ramp at SR 500.
 - Replacement of the I-205 southbound on-ramp from westbound SR 500 with a flyover ramp.
- Modifications to SR 14/I-205 interchange:
 - Modifications to the SR 14 eastbound and westbound off-ramps to northbound I-205 and Mill Plain.
- New access from I-205 to NE 112th Avenue:
 - Construction of a new access by extending the existing I-205 northbound off-ramp at Mill Plain Boulevard northerly to an intersection with NE 112th Avenue north of Mill Plain.
- New access along I-205 between NE 18th Street and Burton Road:
 - Construction of a split-diamond interchange along I-205 between NE 18th Street and Burton Road.
- Modifications to the I-205 between SR 500 and NE 83rd Street (Padden Parkway)
 - Addition of a third through lane in each direction between SR 500 and NE 83rd Street (Padden Parkway).

Figure E.3 shows the existing corridor together with the recommended alternative.

These improvements will be constructed through a staged implementation program as defined in Appendix A. Analysis of the recommended alternative and its staged implementation assumed that the stages would be implemented in sequential order. Analysis has shown that, upon completion of each stage, traffic operating and safety conditions in the study area are improved, or in no case worsened, compared to the Baseline conditions. If a stage is to be implemented out of sequential order, additional analysis would be



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needed to verify that the modification to the staging would not result in a deterioration in traffic operating and safety conditions compared to Baseline conditions. The two exceptions are Stage 1A (the direct connector to NE 112th Avenue) and Stage 5 (the addition of a third lane in each direction along I-205 between SR 500 and NE 83rd Street). These improvements can proceed independently at any point during the project implementation process.

PROJECT NEED

The need for this project is to improve safety, reduce weaving, and increase or maintain the levels of service along I-205 in the study area in the design year. This will be accomplished by implementing improvements along I-205 between SR 14 and NE 83rd Street (Padden Parkway), including provision of new access locations and the modification of existing access locations.

Existing travel demand, for both regional bi-state travel and local access, approaches or exceeds the capacity of the interchange areas along I-205 within the Study Area. As a result of the volume of traffic along the I-205 mainline, coupled with vehicles entering and exiting I-205, the weaving sections in the vicinity of SR 14, Mill Plain Boulevard and SR 500 currently operate at Level of Service (LOS) E or F during peak periods.

By the design year, the merging and weaving sections of I-205 (specifically SR 14, Mill Plain Boulevard, and SR 500 interchange areas) are projected to operate at Level of Service (LOS) F. The large concentrations of traffic entering and exiting the freeway at existing access locations affect the freeway's ability to convey through traffic at LOS D or better.

WSDOT has identified a number of high accident locations within the study area. While some improvements have been implemented along I-205 at SR500 to address identified problem in that area, delay along I-205 and queuing onto the mainline from the existing access locations, which account for many of the accidents, will continue to increase in the future. The continued increases will further contribute to unsafe conditions and the potential for increased accident occurrences along I-205, particularly through the interchange areas.

CORRIDOR OPERATIONS

Existing Conditions

Currently congestion occurs along I-205 in the southbound direction in the vicinity of the SR 500 interchange area, and in the vicinity of the Mill Plain Boulevard interchange area to SR 14 during the AM peak hour. Analyses show the following location currently operates at a failing level of service (LOS F):

- I-205 & SR 500 southbound cloverleaf weaving section (AM peak hour).

One additional location currently operates at capacity (LOS E):

- I-205 weaving section between Mill Plain Boulevard southbound on-ramp and SR 14 southbound off-ramp (AM peak hour).

Two locations operate near capacity (LOS D):

- I-205 southbound off-ramp to Mill Plain Boulevard (AM peak hour)
- I-205 weaving section between SR 14 northbound on-ramp and the northbound off-ramp to Mill Plain Boulevard (PM peak hour).

Deteriorating levels of service through the I-205 southbound weaving section between Mill Plain Boulevard and SR 14 result in mainline congestion and delay as well as excessive queuing on the ramps in the AM peak hour.

Similar conditions have been observed in the PM peak through the I-205 northbound weaving section between SR 14 and Mill Plain Boulevard although the analysis indicates that this section currently operates at a level of service D. Congestion along Mill Plain Boulevard results in delays in discharging northbound off-ramp traffic. Queuing on the northbound off-ramp conflicts with I-205 northbound mainline traffic and further exacerbates the weaving conditions and poses a safety problem on I-205 south of Mill Plain Boulevard.

2025 Baseline Conditions

Without improvements (other than those included in the 2025 baseline), conditions along the I-205 between SR 14 and SR 500 will have further deteriorated by 2025. The operating conditions are forecast to be failing (LOS F) in 2025 at the following locations:

- I-205 northbound on-ramp from Mill Plain Boulevard.
- I-205 southbound on-ramp from SR 500.
- I-205 northbound off-ramp to SR 500.
- Southbound weaving section along I-205 between Mill Plain Boulevard and SR 14.
- Southbound weaving section along I-205 between SR 500 on and off- ramps (cloverleaf).

Two locations are forecast to operate at capacity (LOS E):

- I-205 southbound off-ramp to Mill Plain Boulevard.
- Northbound weaving section along I-205 between SR 14 and Mill Plain Boulevard.

2025 Build Conditions

With implementation of the recommended alternative, all segments of I-205 would operate with improved levels of service compared to the 2025 Baseline conditions. The recommended alternative addresses all current and forecast deficiencies with the exception of the southbound on-ramp from Mill Plain Boulevard to I-205. The operating conditions on this ramp are substantially affected by the downstream capacity along the I-205 freeway mainline. The LOS F operations of the Mill Plain Boulevard southbound on-ramp to I-205 are related to the lack of downstream capacity to receive the vehicles attempting to enter the traffic flow from Mill Plain. This in turn is due to the capacity constraints along I-205 crossing the Glenn Jackson Bridge. This condition exists in the Baseline scenario as well, where it is represented by LOS F operations along the weaving section of I-205 between Mill Plain Boulevard and SR 14.

The recommended alternative improves or eliminates weaving conditions along the length of I-205 between SR 14 and SR 500 and provides increased ramp capacity to facilitate travel demand to and from I-205. In particular, modifications to the SR 14 ramp to northbound I-205 and the I-205 southbound ramp to SR 14 eliminate weaving conflicts and improve ramp capacities.

INTERCHANGE ACCESS POLICY POINTS

Policy Point One: Future Interchanges

The recommended alternative is compatible with the comprehensive transportation network in the region. The proposed additional interchange along I-205 between Mill Plain Boulevard and SR 500 has been a part of planning in the local area and the region for over fifteen years. As incorporated into the recommended alternative, it does not preclude future opportunities to implement HOV lanes or other high-capacity transit improvements within the I-205 corridor through the study area. There are no other interchanges planned within this study corridor at this time.

Policy Point Two: Land Use and Transportation Plans

The recommended alternative is compatible with all land use and transportation plans for the area including Washington's Transportation Plan, WSDOT State Highway System Plan, the Metropolitan Transportation Plan for Clark County, the Metropolitan Transportation Improvement Program for Clark County, the City of Vancouver Comprehensive Plan, the City of Vancouver Transportation Improvement Program, the Clark County Comprehensive Growth Management Plan, the Clark County TIP, and C-TRAN Transit Development Plan.

Policy Point Three: Reasonable Alternatives

All reasonable alternatives to address congestion, delay and safety issues related to the I-205 corridor between SR 14 and SR 500 were considered, including local system-only improvements, a variety of alternatives to provide new access, and combined alternatives to improve the local arterial system in conjunction with improvements to the I-205. The role of transit in accommodating future travel demand within the I-205 corridor was also incorporated into the analysis of potential alternatives. Transportation System Management (TSM) and Transportation Demand Management (TDM) strategies were also considered as a part of the analysis of potential alternatives. The alternatives were developed, evaluated and screened in a process that involved the consultant team working in close coordination with a Technical Advisory Committee and a Community Advisory Committee to address the requirements, issues and concerns of both.

Policy Point Four: Need for the Access Point Revision

The need for this project is to improve safety, reduce weaving, and increase or maintain the levels of service along I-205 in the study area in the design year. This will be accomplished by implementing improvements along I-205 between SR 14 and NE 83rd Street (Padden Parkway), including provision of new access locations and the modification of existing access locations.

Congestion currently occurs along I-205 in the southbound direction during the AM peak period. The weaving sections along I-205 through the SR 500 interchange area and between Mill Plain Boulevard and SR 14 are currently operating at levels of service F and E, respectively. Substantial traffic volumes, and associated congestion and delay along Mill Plain Boulevard in the vicinity of I-205 further exacerbate the conditions in the vicinity of the Mill Plain Boulevard interchange.

Without significant improvement to I-205 through the study area, conditions along the I-205 corridor will further deteriorate in the future. The interchanges with I-205 at Mill Plain Boulevard and SR 500 are significant to regional travel patterns. The substantial portion of trips accessing I-205 at these locations are interstate or regional trips. For example, 83 percent of PM peak hour traffic entering I-205 northbound at Mill Plain Boulevard is traveling north of SR 500 or using SR 500 to travel to points beyond the study area. Similarly 96 percent of AM peak hour traffic entering I-205 southbound at Mill Plain Boulevard crosses Glenn Jackson Bridge into Oregon. Using select link analysis and the RTC's travel demand forecast model,

similar travel patterns were identified at each of the study area interchanges. Existing travel patterns are not forecast to change significantly by 2025.

Policy Point Five: Access Connections and Design

The recommended alternative provides for fully directional access via interchanges and collector-distributor roads, connected to public roads. The design of the recommended alternative accommodates spacing requirements and constraints and meets geometric standards.

Policy Point Six: Operational and Accident Analyses

Based on analysis of the recommended alternative under 2025 conditions, all segments of I-205 are forecast to operate at improved levels of service compared to the 2025 Baseline conditions with the exception of the southbound on-ramp from Mill Plain Boulevard to I-205. Operating conditions on this ramp are controlled by capacity constraints to the mainline and, in particular, traffic demand in excess of mainline capacity approaching and crossing the Glenn Jackson bridge into Oregon, which are not addressed by the recommended alternative.

The recommended alternative will be constructed through a staged implementation program. Analysis of the recommended alternative and its five-stage implementation assumed that the stages would be implemented in sequential order. Analysis has shown that, upon completion of each stage, traffic-operating conditions in the study area are improved, or in no case worsened, compared to the Baseline conditions. The improvements that comprise two of the stages (Stage 1 - the direct connector to NE 112th Avenue and Stage 5 - the addition of a third lane along I-205 between SR 500 and NE 83rd Street) can proceed independently at any point during the project implementation process.

Policy Point Seven – Coordination

The major elements of the recommended alternative are included in the financially constrained Metropolitan Transportation Plan for Clark County and the local area Transportation Improvement Programs, and are compatible with Washington's Transportation Plan and the WSDOT State Highway System Plan.

Funds have not yet been committed for any phase of the recommended alternative. All of the improvements included in the recommended alternative are needed currently to address existing and forecast system deficiencies. A staging plan has been developed to provide a framework and prioritization for programming funds.

Policy Point Eight – Planning and Environmental Processes

The recommended alternative was subjected to a preliminary environmental review (see Appendix G) using existing environmental and land use data, supplemented by informal coordination with environmental and natural resources agencies and field observations. A State Environmental Policy Act (SEPA) checklist was completed to provide WSDOT (as the lead state agency for the planning study) with a basis for determining the significance of the project. The checklist is also included in Appendix G of this report.

Based upon the existing environmental information, a likely next step in this process would be the initiation of a draft Environmental Impact Statement for the comprehensive I-205 corridor improvements.

Policy Point 1: Future Interchanges

Is the proposed access point revision compatible with a comprehensive network plan?

The proposed access point revision – to add a new interchange along I-205 between Mill Plain Boulevard and SR 500 – is compatible with the comprehensive transportation network in the region.

- The main feature of the proposed alternative, the additional interchange, has been a part of planning in the local area and the region for over fifteen years.
- The proposed revision was developed with consideration of other identified projects planned in the vicinity of the study area.
- The recommended alternative does not preclude future opportunities to implement HOV lanes or other high-capacity transit improvements within the I-205 corridor through the study area.

PREVIOUS PLANNING FOR ADDED I-205 ACCESS

In 1986, the South County Planning Area: Citizen Advisory Committee Report (Clark County, December, 1986) led to the recommendation to plan for several additional interchanges on I-205, including an interchange at NE 18th Street. The report also recommended widening NE 18th Street to six lanes from the proposed I-205 interchange to 136th Avenue and to four lanes east of 136th to help address highway capacity problems in the rapidly growing South County area. In the late 1980's, when C-TRAN sited the Evergreen Transit Center, the site was selected with the expectation that I-205 access would be provided at NE 18th Street in the future.

In November 1992, the Bi-State Transportation Study; Synthesis of Findings (prepared for Metro by Kittelson & Associates, Inc.) analyzed existing and future transportation conditions in the I-5 and I-205 corridors. In analyzing future conditions, the study included the assumption that an interchange would be added at I-205/NE 18th Street.

The I-205 and East-West Arterials Study, published by RTC in July 1996, recommended an additional access point on I-205 in the form of a split diamond interchange with ramps at NE 18th and NE 28th Streets together with auxiliary lanes. Arterial street recommendations were to extend NE 18th Street west from I-205 to NE 87th Avenue (3 lanes width) and widen NE 18th Street from I-205 east to NE 162nd Avenue to 5 lanes wide. Burton Road/NE 28th Street was also recommended for widening to 3 lanes between Andresen and 162nd Avenue. The next step toward project implementation was recognized to be preparation of an access decision report to submit to the Federal Highway Administration.

The alternatives considered in the current study are consistent with the recommendations of these earlier studies including the consideration of potential enhancements to the existing interchanges along I-205, improvements to the arterials providing access to/from I-205, as well as opportunities to provide additional access along I-205.

CONSIDERATION OF OTHER PROPOSED PROJECTS

Within the study area, a number of improvements are planned. These improvements have been considered in developing and evaluating corridor alternatives.

I-5/I-205 NORTH ROUTE DEVELOPMENT PLAN

Concurrent with the I-205 Strategic Corridor Pre-Design Study, the I-5/I-205 North Route Development Plan study recommends improvements along I-205 from NE 83rd Street/Padden Parkway to I-5. The I-205/NE 83rd Street interchange was common to both studies although it was understood that the I-5/I-205 North study would

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take the lead in developing alternatives for this interchange, and the I-205 Strategic Corridor Pre-Design Study would incorporate the recommendations into alternative strategies identified for I-205 south of NE 83rd Street.

Based on the I-5/I-205 North Study environmental and transportation analyses, and preliminary design of the alternatives, the following corridor improvement strategies were developed as part of the that study:

I-205 Corridor Mainline - Milepost 32.61 To 37.16

- Extend third northbound through-lane from Padden Parkway (to be included in I-205 Strategic Corridor Pre-Design Study) to 134th Street NE and third southbound through-lane from 134th Street to Padden Parkway.
- Reserve an envelope (space reserved for future use) for HOV/High Capacity Transit system in the median of I-205.
- Safety improvements identified in the Highway System Plan, including improving guardrail, flattening slope, and installing traffic barrier.

83rd Street/Padden Parkway Interchange - Milepost 32.61 To 33.20

- Widen southbound on-ramps to accommodate future ramp metering.
- Widen northbound off-ramp from mainline to two lanes, terminating in one shared left/right turn lane to both westbound and eastbound Padden Parkway, and one right-turn lane to eastbound Padden Parkway).
- Add a second northbound-to-eastbound exit lane for transit priority to proposed Central County Park-and-Ride.

In considering alternatives in the I-205 Corridor, in addition to addressing traffic flow and safety issues along I-205, the alternatives do not preclude future opportunities for implementation of HOV lanes or other high-capacity transit improvements within the existing median of I-205 was a consideration.

PADDEN PARKWAY PEDESTRIAN BRIDGE

In addition to the improvements recommended in the I-5/I-205 North Route Development Plan, Clark County has designed a pedestrian bridge crossing of I-205 at NE 83rd Street/Padden Parkway to accommodate pedestrian access to the planned new C-TRAN Central County park and ride facility located east of I-205 on the south side of Padden Parkway (83rd Street). Construction of the bridge is scheduled to begin in Summer of 2002. While this strategy is not incompatible with the alternatives under consideration for the I-205 corridor, coordination of design will be necessary in order to accommodate the county's bridge and the ultimate recommendations for the I-205 corridor.

SR 500 AT NE 112TH AVENUE

Approximately a half mile east of the interchange of I-205 at SR 500, the intersection of SR 500 at NE 112th Avenue is planned for improvement. As planned, the intersection would be reconstructed as a grade-separated interchange. The I-205 northbound off-ramp would also be reconfigured and integrated into the design of the new SR 500/NE 112th interchange. This new interchange and its proximity to the I-205/SR 500 interchange is significant when considering alternatives to address existing and forecast deficiencies in the I-205/SR 500 interchange vicinity.

SR 500 AT THURSTON WAY

The at-grade intersection at SR 500/Thurston Way is being eliminated with construction of a single-point urban interchange. The \$23 million project will feature an SR 500 overcrossing of Thurston Way. The project, which is currently being constructed as a "design-build" project, is scheduled for completion in October 2002.

Policy Point 2 – Land Use and Transportation Plans

Is the proposed access point revision compatible with all land use and transportation plans for the area?

The planning process that led to the recommended alternative for access revisions to the I-205 Corridor considered land use and transportation plans and policies for the area, and the proposed access point revisions are compatible with the adopted plans. The considered plans include:

- State-wide Plans - Washington's Transportation Plan, WSDOT State Highway System Plan,
- Regional Plans - Metropolitan Transportation Plan for Clark County, Metropolitan Transportation Improvement Program for Clark County,
- Local Plans - City of Vancouver Comprehensive Plan, City of Vancouver Transportation Improvement Program, Clark County Comprehensive Growth Management Plan, Clark County TIP, and C-TRAN Transit Development Plan.

To assist in identifying a solution compatible with the area plans, a Study Technical Advisory Committee (TAC) comprised of representatives of the Washington State Department of Transportation, the Southwest Washington Regional Transportation Council, the City of Vancouver, Clark County, and C-TRAN as well as bi-state representatives from the Oregon Department of Transportation and Metro was formed. The TAC met regularly throughout the planning process and provided input on the consistency of the alternatives developed with the plans and programs of the agencies represented.

The coordination and consistency of the proposed access and modifications with adopted statewide and metropolitan plans is consistent with processes prescribed in 23 CFR Part 450, as well as air quality conformity requirements of 40 CFR Parts 51 and 93.

Plans considered, and the proposed access revisions' consistency with these plans, are presented below. Where the proposed access revision is not specifically referenced in a planning document, its consistency with that plan and the process for the appropriate agency to incorporate the project into the plan is discussed.

STATEWIDE PLANS

WASHINGTON'S TRANSPORTATION PLAN (WTP)

Washington's Transportation Plan is the statewide, strategic 20-year plan of transportation modes both state owned and of state interest. The current WTP covers 2003-2022, and was adopted in February 2002. The WTP is the WSDOT decision tool that links state and regional transportation plans to provide strategies for transportation investments. The WSDOT State Highway System Plan, described below, is an element of the WTP that specifically addresses planning and programming of highway projects, such as recommended through the I-205 Strategic Corridor Pre-Design Study process.

WSDOT STATE HIGHWAY SYSTEM PLAN (HSP)

The Highway System Plan is the state highway element of the WTP. The HSP identifies state highway needs for a 20-year planning horizon, and provides conceptual solutions (including conceptual cost estimates) for those needs. The HSP contains general information on Washington State's highway programs and how they are balanced with funding projections. The current HSP (2003-2022) was adopted in February 2002 in conjunction

with the WTP. Some of the proposed improvements for I-205 under the “Mobility Strategies” sub-program of the current HSP are the following:

- Split-diamond interchange at NE 18th Street and NE 28th Street/Burton Road.
- Direct connection to NE 112th Avenue from I-205 northbound in the vicinity of Mill Plain Boulevard.
- Other I-205 /Mill Plain Boulevard interchange area and I-205/SR-500 interchange vicinity improvements.

REGIONAL PLANS

METROPOLITAN TRANSPORTATION PLAN FOR CLARK COUNTY (MTP)

The MTP is the regional transportation plan for the metropolitan area of Clark County. It is developed to meet the metropolitan area’s transportation needs over a 20-year planning period. The Southwest Washington Regional Transportation Council (RTC) develops and approves the MTP. The first MTP for Clark County was adopted in December 1994, updated in 1996 and 1999 and amendments carried out in 1997, 1998, 1999 and 2000. The current MTP considers transportation needs through 2020. Transportation improvements must be identified in the MTP before they can be programmed for funding in the region’s Transportation Improvement Program (TIP).

The MTP includes the following study recommendations:

- Split diamond interchange at I-205 and NE 18th Street and NE 28th Street/Burton Road.
- Direct connection from I-205 northbound to NE 112th Avenue at the I-205/ interchange.
- Plans to widen east-west arterials in the I-205 corridor area including NE 18th Street and Burton Road/NE 28th Street.

Projects included in the MTP are listed in Appendix B.

METROPOLITAN TRANSPORTATION IMPROVEMENT PROGRAM FOR CLARK COUNTY (MTIP)

The MTIP is a three-year priority listing of regional transportation projects with a federal funding component, as well as projects that utilize state and/or local funding sources. The proposed access revision is not yet programmed for funding in the MTIP. However, upon completion of the Access Point Decision Report, the project, or a phase of the project, would be evaluated for inclusion in the three-year timeframe of the MTIP. The process for entering the proposed access revision would be entered into the MTIP development process, which includes the following steps:

- Project screening for consistency with local land use plans and the Metropolitan Transportation Plan;
- Evaluation and ranking of projects by an adopted set of needs criteria;
- Project selection; and
- Programming of projects.

LOCAL PLANS

CITY OF VANCOUVER COMPREHENSIVE PLAN

The City of Vancouver’s Comprehensive Plan was adopted in 1994 to guide land use development in Vancouver for 20 years. It contains policies addressing land use, capital facilities, and environmental protection. It also includes a land use map illustrating the general type and density of development allowed on properties

within the Vancouver Urban Growth Area, including all lands within the city of Vancouver. The process to update the Comprehensive Plan is now underway.

A key strategy in complying with Growth Management Act (GMA) goals is concurrency. As defined by the GMA, concurrency is the requirement that adequate transportation capacity be available to support development. A proposed development may not proceed if it would lower the Level of Service (LOS) of a transportation facility below the adopted standard. Transportation improvements that would bring the LOS back to the adopted standard must be reasonably funded and scheduled for completion within six years.

The portion of Vancouver through which the I-205 corridor runs has experienced substantial growth and urbanization in recent years resulting in a congested highway system. The proposed improvements to the I-205 corridor would represent a key component in supporting the realization of land use planning goals of the City of Vancouver and Clark County for the immediate study area and for the entire urbanized area of eastern Clark County.

CITY OF VANCOUVER TRANSPORTATION SYSTEM PLAN (TSP)

The City of Vancouver is currently developing a comprehensive citywide transportation system plan. When completed, this plan will provide the city with the framework to guide transportation policies, facilities planning and design, and implementation of transportation improvements in the future. The development of the TSP was initiated during the I-205 Corridor Study, and the proposed improvements to the I-205 corridor have been a consideration during the TSP development process. Discussions with City officials verify that the Study's recommended alternative will be consistent with the TSP, when adopted.

CITY OF VANCOUVER TRANSPORTATION IMPROVEMENT PROGRAM (2000-2005)

The City of Vancouver's Transportation Improvement Program (TIP) is a scheduling document for transportation improvements over a six-year period. The TIP identifies and prioritizes funding for capital roadway and bridge projects, and bicycle, pedestrian, and transit projects. The I-205 Strategic Corridor Pre-Design Study considered projects identified in the 2000-2005 TIP, including the I-205 at Mill Plain Boulevard to NE 112th Avenue access improvement project and major east-west arterial improvements to NE 18th Street and Burton Road/NE 28th Street. The Study's recommended alternative and access revision is consistent with the City's TIP.

CLARK COUNTY COMPREHENSIVE GROWTH MANAGEMENT PLAN

Adopted in 1994, the Clark County Comprehensive Growth Management Plan provides vision and goals for land use and development in Clark County over a 20 year planning horizon. The Study's recommended alternative and access revision is consistent with the planning and land use goals of the plan.

CLARK COUNTY TIP (2001-2006)

Clark County's TIP prioritizes road, bike, bridge, and pedestrian improvements to achieve the goal of the County's Comprehensive Plan. The I-205 Strategic Corridor Pre-Design Study's recommended alternative is consistent with projects identified in the County's TIP.

C-TRAN TRANSIT DEVELOPMENT PLAN

Development of the bus transit system assumed in the I-205 Strategic Corridor Pre-Design Study Access Point Decision Report is consistent with C-TRAN's transit plans as outlined in C-TRAN's Transit Development Plan (TDP). The most recent version of the TDP was published in August 2000 and focuses on the years 2000 to 2006.

Policy Point 3 – Reasonable Alternatives

Have all reasonable alternatives been assessed and provided for?

The planning process for the Access Decision Report assessed all reasonable alternatives that would potentially address the traffic circulation and operations and safety needs within the study area through an iterative process of identification and evaluation of alternatives. This process, which resulted in the recommended alternative, included the following:

- Initial alternative development and screening.
- Alternative refinement and secondary screening.
- Refinement of selected alternatives.
- Integration of input from both Technical and Citizens Advisory Committees.

INITIAL ALTERNATIVES DEVELOPMENT

Existing and future baseline transportation conditions were evaluated to determine operational deficiencies within the I-205 corridor study area. A broad range of preliminary alternatives was developed to address the identified deficiencies. An objective of this initial alternatives development process was to identify all possible strategies to address identified deficiencies. These included:

- Local system-only improvements – in addition to the baseline local roadway system, this alternative added traffic signals and geometric improvements at key intersections to address identified deficiencies in the local arterial system;
- New split diamond interchange between NE 18th Street and NE 28th Street/Burton Road;
- New single diamond interchange at NE 18th Street;
- New single diamond interchange at 28th Street/Burton Road;
- Major local arterial access/circulation modifications in the vicinity of the Mill Plain Boulevard interchange;
- Major modifications to the Mill Plain Boulevard interchange including combinations of the following improvements:
 - direct access from I-205 northbound to Chkalov Road at SE 10th Street
 - direct access from I-205 northbound to SE 5th Street
 - direct access from I-205 northbound to 112th Avenue
 - addition of a half-diamond interchange at NE 18th Street (south)
 - improvements to the SR 14 on-ramp to northbound I-205 and the southbound I-205 off-ramp to SR 14;
 - improvements to the I-205/SR 500 interchange.

Sketches of each of the improvement strategies are included in Appendix C.

The study team and the study's Technical Advisory Committee (TAC) evaluated these preliminary alternatives. The evaluation used the following "first tier" criteria:

- The alternative addressed (in concept) existing or forecast traffic and safety deficiencies;
- Implementation would be feasible from an engineering standpoint;
- The alternative would not preclude high capacity transit or high occupancy vehicle facilities; and

- The alternative was to be generally consistent with other transportation and land use plans.

Based on this evaluation, the preliminary alternatives were advanced with the exception of the single diamond interchange at 28th Street/Burton Road, which was eliminated from further consideration for the following reasons:

- its northerly location significantly limited this interchange's potential to relieve congestion at the Mill Plain Boulevard interchange (a "hot spot" for traffic deficiencies), thereby reducing its potential to address area wide congestion and delay issues;
- it was eliminated as a viable alternative after detailed analysis during the East-West Arterial Improvement Study; and
- 28th Street/Burton Road is limited to three lanes, which would not provide adequate capacity to accommodate the projected traffic from the full diamond interchange.

The TAC used a set of "second tier" criteria, listed below, to evaluate the preliminary alternatives:

- levels of service;
- preliminary engineering feasibility;
- regional mobility/trip dispersion; and
- community acceptability.

Table 3.1 summarizes the results of the TAC evaluation of the preliminary alternatives. Alternative E options (N1, N2, S1, and S2) are shown in Appendix C.

Table 3.1 – Preliminary Alternatives Evaluation			
Alternative	Advantages	Disadvantages	Recommendation
Alternative A – Local Arterial Improvements	Provides baseline for comparison	Doesn't address deficiencies	Carry forward as a "baseline"
Alternative B – New Split Diamond Interchange at NE 18 th & NE 28 th /Burton	<ul style="list-style-type: none"> - Good local trip distribution - Consistent with local and regional plans - Reduces delays on Mill Plain - Improves weave conditions between Burton and Mill Plain - Benefits C-TRAN services and facilities 	<ul style="list-style-type: none"> - May have right-of-way impacts - Creates unacceptable weave - Shifts mainline congestion to north 	<p>Carry forward for further analysis, with the following refinements and suggestions:</p> <ul style="list-style-type: none"> - consider braiding the ramps - add direct connector ramp from NB I-205 to 112th Avenue

Table 3.1 – Preliminary Alternatives Evaluation			
Alternative	Advantages	Disadvantages	Recommendation
Alternative C – New Diamond Interchange at NE 18 th Street	<ul style="list-style-type: none"> - Programmed improvements to NE 18th could accommodate increased traffic - Benefits C-TRAN services and facilities 	<ul style="list-style-type: none"> - Insufficient separation between I-205 interchanges at NE 18th and Mill Plain - Short distance between interchange and 112th is problematic (like Mill Plain/Chkalov intersection) 	Eliminate from further consideration.
Alternative D – Mill Plain Boulevard Local Access Improvements	<ul style="list-style-type: none"> - Improves operations at the I 205/Mill Plain Blvd. Interchange area 	<ul style="list-style-type: none"> - Restricts access to some local land uses - Would impact area businesses - Community concerns 	Eliminate from further consideration.
Alternative E – Option N1 – New Direct Connection to 112 th Avenue North of Mill Plain	<ul style="list-style-type: none"> - Benefits Mill Plain Boulevard operations 	<ul style="list-style-type: none"> - May create an unacceptable weave 	Incorporate this concept into other alternative(s) carried forward.
Alternative E – Option N2 – New Half-Diamond Interchange at NE 18 th Street (South)	<ul style="list-style-type: none"> - Enhances northbound off and southbound on capacity 	<ul style="list-style-type: none"> - Creates a weave condition 	Incorporate this concept into other alternative(s) carried forward.
Alternative E – Option S1 – New Direct Connection to Chkalov at McGillivray and 5 th Street Extension	<ul style="list-style-type: none"> - Improves Mill Plain/Chkalov congestion problems 	<ul style="list-style-type: none"> - Would create unacceptable weave situation north of SR 14. - Neighborhood impacts 	Eliminate from further consideration.
Alternative E – Option S2 – New Direct Connection to 5 th Street Extension	<ul style="list-style-type: none"> - Improves Mill Plain/Chkalov congestion problems 	<ul style="list-style-type: none"> - Would create unacceptable weave situation north of SR 14. - Neighborhood impacts 	Eliminate from further consideration.

REFINEMENT OF SELECTED ALTERNATIVE

Based on the results of the second tier evaluation, the Technical Advisory Committee identified a single alternative concept (a new split diamond interchange at NE 18th Street/Burton Road/NE 28th Street) for further, more detailed analysis. They also identified a number of elements from the other preliminary alternatives that may provide additional benefit to I-205 traffic flow if they were incorporated into a recommended alternative. These included the direct connection from northbound I-205 to NE 112th Avenue, local arterial improvements along Mill Plain Boulevard in the vicinity of the I-205 interchange and improvements to NE 5th Street.

Independent of the TAC evaluation, and applying their own community criteria, the Citizens' Advisory Committee evaluated the preliminary alternatives. The CAC used the following criteria to guide their evaluation of the alternatives:

- Improve local street connections that support interchanges and arterials.
- Minimize neighborhood cut-through traffic.
- Maintain or enhance emergency access corridors.
- Maintain or enhance school corridors.
- Maintain or enhance SR 14/Glenn Jackson Bridge access.
- Improve freeway operations (in terms of V/C) overall.
- Improve arterial operations overall.
- Enable multi-modal/transit/TDM options.

INTEGRATION OF INPUT FROM TECHNICAL AND CITIZENS ADVISORY COMMITTEES

While the positive and negative attributes of each alternative identified by the CAC differed somewhat from those identified by the TAC, the recommendations regarding the alternatives to be discarded and those that were to be carried forward were consistent between the two committees.

The TAC, and subsequently the Access Decision Report Steering Committee then subjected the selected alternatives to an iterative process of more detailed operational analysis and evaluation, and refinement. The most significant refinements to the alternative in its evolution to the recommended alternative was, first, the development of a collector-distributor (C-D) system northbound and southbound along I-205 between SR 14 and SR 500, and then the replacement of the C-D system with a series of braided ramps. These refinements were the result of detailed operational analyses of both the C-D and ramp systems along I-205, and the I-205 mainline. The resulting recommended alternative includes:

- Braided ramps between eastbound and westbound SR 14 and northbound I-205;
- Braided ramps between southbound I-205 off connection to SR 14, and the Mill Plain Boulevard southbound on-ramps;
- Direct connection between northbound I-205 and NE 112th Avenue north of the Mill Plain Boulevard interchange;
- Northbound off-ramp at NE 18th Street braided under the northbound Mill Plain Boulevard on-ramp;
- Southbound on-ramp at NE 18th Street braided over the southbound Mill Plain Boulevard off-ramp;
- Frontage roads (one-way couplets) connecting Burton Road/NE 28th Street to NE 18th Street;
- Northbound on-ramp at Burton Road/NE 28th Street braided over the northbound SR 500 off-ramp;
- Southbound off-ramp at Burton Road/NE 28th Street;
- Replacement of the eastbound to southbound SR 500 cloverleaf ramp with a flyover ramp;

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- Relocation of the ramp termini of the northbound SR 500 off ramp and the southbound SR 500 on-ramp; and
- Addition of a third through lane in each direction along I-205 from SR-500 through the NE 83rd Street/Padden Parkway interchange.

Throughout this process, the Study Citizens' Advisory Committee (CAC) met regularly to provide input on the development and evaluation of alternatives.

Policy Point 4 – Need for the Access Point Revision

What are the current and projected needs and why won't the existing access points and existing or improved local system meet the needs? Is the anticipated demand for short or long trips?

Existing demand for regional bi-state travel (long trips) and to a lesser degree local access (short trips), approaches or exceeds the capacity of the interchange areas along I-205 within the study area. This project is needed to meet existing and future demand by improving safety, reducing weaving, and increasing or maintaining the levels of service along I-205 in the study area.

As a result of the high volume of traffic along the I-205 mainline coupled with vehicles entering and exiting I-205, the weaving sections in the southbound direction along I-205 through the SR 500 interchange area and between Mill Plain Boulevard and SR 14 currently operate at Level of Service (LOS) F and E, respectively, during the AM peak hour.

By the design year, the merging and weaving sections of I-205 (specifically SR 14, Mill Plain Boulevard, and SR 500 interchange areas) are projected to operate at LOS F. The large concentrations of traffic entering and exiting the freeway at a limited number of access locations (Mill Plain Boulevard and SR 500) affect the mainline freeway's ability to convey through traffic at acceptable levels of service.

Analysis of the local roadway system indicates that demand for access to high growth areas east of the I-205 corridor currently exceeds the capacity of several local system intersections adjacent to the I-205. Potential improvements to these intersections have been identified and analyzed, but these improvements alone are insufficient to accommodate current and projected traffic needs with access to I-205 limited to the two existing interchange locations at Mill Plain Boulevard and SR 500.

Delay along I-205 and queue spill-back onto the mainline from the existing ramps contribute to accidents and safety concerns within the corridor. These delays will continue to increase in the future. The continued increases will further contribute to unsafe conditions along I-205, particularly through the interchange areas.

EXISTING CONDITIONS

FREEWAY OPERATIONS

The levels of service for the I-205 mainline segments and weaving and ramp junction influence areas were calculated based on the methodologies in the 1997 Highway Capacity Manual (HCM)¹. Table 4.1(p. 12) summarizes the results of this analysis at ramp junction influence and weaving areas for the AM and PM peak hours. As shown in Table 4.1, all of the areas analyzed are currently operating at a LOS D condition or better during the peak hours with the two following exceptions:

- I-205 & SR 500 southbound cloverleaf ramps (LOS F during the AM peak hour).
- I-205 southbound from Mill Plain Boulevard to SR 14 (LOS E during the AM peak hour).

The LOS F condition at the southbound SR 500 cloverleaf ramps during the AM peak hour is a result of the heavy weaving volumes and maneuvers that occur on the collector distributor road that accommodates southbound off-ramp traffic to SR 500 EB and traffic destined for the southbound on ramp. The geometry of the

¹ Highway Capacity Manual, Special Report 209, Transportation Research Board, Washington, DC, 1997

C-D road and cloverleaf provides inadequate capacity to accommodate this mix of relatively heavy volume and high-speed traffic. In recent years, significant employment growth has occurred in the vicinity of I-205/SR 500 interchange and Vancouver Mall. Growth is forecast to continue as the area realizes its full potential with build-out of the comprehensive plan.

Table 4.1– Summary of 1999 Existing Peak Hour Freeway Operations Analysis						
Location	AM Peak			PM Peak		
	Computed Density	Computed¹ Speed (mph)	LOS	Computed Density	Computed¹ Speed (mph)	LOS
I-205 ON/OFF RAMPs						
I-205/Mill Plain NB ramp (merge)	15	60	B	26	58	C
I-205/SR 500 NB Ramp (diverge)	4	59	A	15	58	B
I-205/SR 500 NB Ramp (merge)	10	60	B	20	59	B
I-205/SR 500 SB Ramp (diverge)	8	61	A	5	61	A
I-205/SR 500 SB Ramp (merge)	26	57	C	19	60	B
I-205/Mill Plain SB Ramp (diverge)	29	60	D	23	59	C
WEAVING SECTION						
I-205/Mill Plain –SR 14 NB Ramp	12	50	B	32	39	D
I-205/SR 500 NB ramp (cloverleaf)	18	24	B	30	22	C
I-205/SR 500 SB ramp (cloverleaf)	54	19	F	26	22	C
I-205/Mill Plain- SR 14 SB ramp	42	39	E	23	45	C

¹ Space mean speed for all vehicles

The AM peak hour traffic generated by this employment primarily exits I-205 at the southbound SR 500 cloverleaf ramps. Commuting morning residential traffic destined to I-205 south to Portland or East Vancouver use the southbound SR 500 cloverleaf on-ramp. The conflict between these traffic volumes is a major contributor to the LOS F operation.

The AM peak hour level of service analysis also found that the southbound I-205 weave between Mill Plain Boulevard and SR 14 ramps is operating at LOS E. The poor level of service at this weaving section is primarily due to the high traffic volumes entering I-205 southbound from Mill Plain Boulevard. The entering traffic volumes (2,138 vehicles per hour or vph) from Mill Plain Boulevard in the AM peak hour is almost as high as the southbound mainline traffic volumes (2,352 vph). This volume conflicts with the heavy traffic volumes (1,170 vph) exiting onto SR 14, just one-half mile south of the gore point of the southbound on-ramp from the Mill Plain Boulevard interchange.

During the PM peak hour, congestion occurs at the I-205 northbound weave between the SR 14 and Mill Plain Boulevard ramps. The traffic volumes exiting I-205 at the Mill Plain Boulevard off-ramp are significant (2216 vph) and the queue for this movement has been observed to block traffic attempting to enter I-205 from the SR 14 on-ramp. Recent improvements to this weave area include the following and have improved traffic operations, which are characterized by LOS D in the PM peak hour:

- Addition of a second exiting lane to the Mill Plain Boulevard northbound exit.
- Extension of the lane supporting the SR 14 to I-205 northbound mainline movement. This lane has been extended beyond Mill Plain Boulevard off-ramp to provide for additional weaving and merge area.

EXISTING ARTERIAL OPERATIONS

AM and PM peak hour levels of service were computed for arterial intersections adjacent to the I-205 based on the methodologies outlined in the HCM (see Appendix H for worksheets). Tables 4.2 and 4.3 summarize the existing levels of service of signalized and unsignalized intersections within the study area.

As shown in Table 4.2, only one study area intersection is operating below LOS D in the AM peak hour. The NE 112th Avenue/SR 500 intersection operates at a LOS E condition with a control delay of 73 seconds in the AM peak hour. The poor level of service is primarily due to heavy through traffic volumes at the intersection. The northbound, eastbound, and westbound left turn volumes are also relatively high and conflict with the heavy westbound through volumes destined toward I-205.

Table 4.2 – 1999 Existing Levels of Service for Signalized Intersections				
Signalized Intersection	AM Peak Hour		PM Peak Hour	
	LOS	Delay (seconds)	LOS	Delay (seconds)
Andresen Road/NE 78th Street	D	46.4	E	56.6
Andresen Road/SR 500 Interchange	C	28.2	C	34.9
Andresen Road/Fourth Plain Blvd	C	29.8	D	50.5
Andresen Road/40th Street	C	28.7	D	42.1
Andresen Road/NE 18th Street	D	36	D	48.4
Andresen Road/Mill Plain Boulevard	C	31.6	C	34.0
NE 18 th Street/Burton Road	C	25.5	C	29.8
NE 86th Avenue/Fourth Plain Blvd	B	18.7	C	23.0
NE 87th Avenue/Mill Plain Boulevard	C	24.8	C	25.6
SE Lieser Road/Mill Plain Boulevard	C	28.5	C	23.9
NE 92nd Avenue/Mill Plain Boulevard	C	23.9	C	29.4
NE 97th Avenue/Mill Plain Boulevard	C	24	C	28
NE 97th Avenue/Burton Road	C	24	C	21
SE Ellsworth Road/SE 10th Street	B	16	C	24
NE 86th Avenue/Burton Road	C	30	D	42

Table 4.2 – 1999 Existing Levels of Service for Signalized Intersections				
Signalized Intersection	AM Peak Hour		PM Peak Hour	
	LOS	Delay (seconds)	LOS	Delay (seconds)
I-205 Northbound Ramps/Mill Plain Boulevard	B	20	F	80
I-205 Southbound Ramps/Mill Plain Boulevard	C	23	C	31
Chkalov Drive/Mill Plain Boulevard	D	46	D	42
NE 112th Avenue/NE 18th Street	D	44	D	42
NE 112th Avenue/NE 28th Street	D	40	D	47
NE 112th Avenue/NE 49th Street	C	27	C	29
NE 112th Avenue/SR 500	E	73	F	103
Gher Rd/NE Covington Rd/Fourth Plain	C	33	E	74
NE Covington Rd/NE 76th St/NE 94th Ave	C	21	C	33

Table 4.3 – 1999 Existing Levels of Service for Unsignalized Intersections				
Unsignalized Intersection	AM Peak Hour		PM Peak Hour	
	LOS	Control Delay (sec)	LOS	Control Delay (sec)
NE 83 rd Street/I-205 NB Ramps				
Northbound Right (from off-ramp)	A	9.1	B	11.4
Eastbound Left (onto off-ramp)	A	8.5	A	7.9
NE 83rd Street/I-205 SB Ramps				
Southbound Left	C	15.6	F	53.8
Southbound Right	B	11.3	B	14.8
Southbound Overall	B	13	D	33.7
Andresen Road/NE 83 rd Street				
Northbound Approach	B	11.5	C	21.7
Southbound Approach	F	60.2	C	21.7
Westbound Approach	C	21.3	C	23.2
Overall	E	41	C	22.2
NE 92nd Avenue/Burton Road				
Northbound Approach	D	30.3	F	*
Southbound Approach	F	57	F	*
Eastbound Left	A	9.9	A	9.4
Westbound Left	A	8.1	B	10.2

Table 4.3 – 1999 Existing Levels of Service for Unsignalized Intersections				
Unsignalized Intersection	AM Peak Hour		PM Peak Hour	
	LOS	Control Delay (sec)	LOS	Control Delay (sec)
Chkalov Drive/McGillivray Blvd				
Southbound Left	B	5.42	D	22.72
Southbound Right	A	4.6	C	10.3
Eastbound Left	A	3.9	D	21
Eastbound Through	A	3.1	B	6.6
Westbound Right	B	5.6	B	5.7
Westbound Left	B	6.8	B	8.6
NE Padden Parkway/94th Avenue				
Northbound Approach	C	18.5	E	41.3
Southbound Approach	B	14.5	C	20.3
Eastbound Approach	B	11.2	F	52.4
Overall	C	15.6	E	40.8
NE 136 th Avenue/McGillivray Blvd.				
Northbound Approach	D	25	F	57
Southbound Approach	C	12	C	11
Eastbound Approach	B	7	C	13
Westbound Approach	E	33	C	14
Overall	C	20	C	15
NE 138th Avenue/NE 49th Street				
Northbound Approach	F	57	F	*
Southbound Approach	F	56	F	*
Eastbound Approach	C	16	F	68
Westbound Approach	D	28	C	23
Overall	E	45	F	*
Lieser Road/SR 14 WB Ramps				
Northbound Left	A	9	A	9
Westbound Left	C	19	C	22
Westbound Right	B	11	C	23
Westbound Approach	B	12	C	23
Lieser Road/SR 14 EB Ramps				
Eastbound Approach	C	17	F	*
Westbound Right	B	9	A	9

Table 4.3 – 1999 Existing Levels of Service for Unsignalized Intersections				
Unsignalized Intersection	AM Peak Hour		PM Peak Hour	
	LOS	Control Delay (sec)	LOS	Control Delay (sec)
Ellsworth Road/SR 14 WB On-Ramp Northbound Left	A	9	A	8
Ellsworth Road/SR 14 EB Off-Ramp Eastbound Approach	B	10	E	49

Table 4.2 also identifies the following four signalized intersections as operating below LOS D in the PM peak hour:

- I-205 Northbound Ramps/Mill Plain Boulevard (LOS F; 80 seconds).
- NE 112th Avenue/SR 500 (LOS F; 103 seconds).
- Gher Road/NE Covington Road/Fourth Plain Road (LOS E; 74 seconds).
- Andresen Road/NE 78th Street (LOS E; 57 seconds).

The I-205 northbound ramps/Mill Plain Boulevard intersection operates at LOS F in the PM peak hour with a corresponding control delay of 80 seconds. The poor level of service may be attributable to several factors. First, queues from eastbound traffic at Chkalov Drive produces spillback across Mill Plain Boulevard and creates further backups for eastbound traffic at the I-205 Northbound Ramps/Mill Plain Boulevard intersection. This condition is further complicated by heavy northbound right turn volumes from the I-205 northbound off-ramp movement filling the queuing space available between the two closely spaced intersections. Much of the eastbound through vehicles must wait for the upstream queue to dissipate prior to traveling through the intersection. A second factor contributing to the LOS F condition is the heavy Mill Plain Boulevard eastbound left turn movement destined to I-205 northbound conflicting with the westbound through movement. The conflict between these movements reduces the available green time for the heavy eastbound left turn movement, and creates delays and queuing of the eastbound left turn movement that causes a failing traffic movement.

The LOS F condition in the PM peak hour at the NE 112th Avenue/SR 500 intersection is due to the excessive traffic volumes using the intersection. WSDOT has recognized the congestion problem at this intersection and has plans² to grade separate the intersection with a full interchange.

The NE Gher Road/NE Covington Road/NE Fourth Plain Road intersection operates at a LOS E condition in the PM peak hour with a control delay of 74 seconds. This operation can be partially attributed to the poor intersection geometry and split phasing of the northbound and southbound approaches. The northbound and southbound approaches enter NE Fourth Plain Road at acute angles and reduce the efficiency that motorists could perform turning movements. Combined with a relatively inefficient phasing scheme for these approaches – i.e., split phasing - excessive delays are created at the NE Gher Road/NE Covington Road/NE Fourth Plain Road intersection. Moreover, the heavy eastbound and westbound through movements compete for valuable green time with the east/west split phasing causing even further delays. Clark County has designed an improvement to Fourth Plain through the Orchards area with construction beginning in summer 2001 to address this problem.

As shown in Table 4.3, eight of the twelve unsignalized intersections analyzed currently have one or more movements operating at LOS E or F during one or both peak hours. The LOS E and F operation at the

² State Highway System Plan 2003-2022, Washington State Department of Transportation, February 2002.

unsignalized intersections are an indication that signalization may be a necessary improvement in the near future.

TRAFFIC ACCIDENTS

Analysis of High Accident Locations

As shown in Table 4.4, only one freeway segment exceeds both the average Southwest Region and statewide average accident rate for state facilities. This freeway section is on I-205 northbound in the Mill Plain Boulevard interchange area. It has an accident rate of 2.50 accidents per million VMT. Over 60 percent of the accidents occurring in the Mill Plain Boulevard interchange area are rear end accidents. These accidents are likely associated with the SR 14/Mill Plain Boulevard weave movement. WSDOT has recently made improvements in this area that may alleviate some of the accident related problems. Further monitoring should be conducted to determine whether these improvements have reduced the accident rate along this section of freeway.

Table 4.4 – Reported Accidents and Accident Rates for I-205 and SR 14					
Freeway Section	PDO¹	Injury	Fatal	Total (acc/yr)	Accident Rate²
Interstate 205					
South of SR 14 – NB	23	21	0	8.80	0.66
SR 14 Interchange - NB	37	30	1	13.60	1.37
SR 14 to Mill Plain Boulevard - NB	20	23	0	8.60	0.60
Mill Plain Boulevard Interchange - NB	66	56	0	24.40	2.50
Mill Plain Boulevard to SR 500 - NB	82	71	0	30.60	0.64
SR 500 Interchange - NB	21	28	1	10.00	0.38
SR 500 to NE 83rd Street - NB	13	5	0	3.60	0.11
NE 83rd Street Interchange- NB	7	4	0	2.20	1.11
NE 83rd Street Interchange- SB	6	7	0	2.60	0.87
NE 83rd Street to SR 500 - SB	12	5	2	3.80	0.12
SR 500 Interchange - SB	21	18	0	7.80	0.98
SR 500 to Mill Plain Boulevard - SB	19	14	2	7.00	0.34
Mill Plain Boulevard Interchange - SB	26	24	0	10.00	1.49
Mill Plain Boulevard to SR 14 - SB	18	13	0	6.20	0.41
SR 14 Interchange - SB	26	24	0	10.00	1.16
South of SR 14 – SB	26	13	0	7.80	0.62
SR 14					
Lieser Road Interchange – EB	2	1	0	0.60	0.36
Lieser Road to Ellsworth Road - EB	6	6	0	2.40	0.32
Ellsworth Road Interchange - EB	0	0	0	0.00	0.00
Ellsworth Road to I-205 – EB	1	0	0	0.20	0.10

Table 4.4 – Reported Accidents and Accident Rates for I-205 and SR 14

Freeway Section	PDO ¹	Injury	Fatal	Total (acc/yr)	Accident Rate ²
I-205 Interchange – EB	2	4	0	1.20	1.14
East of I-205 – EB	7	9	0	3.20	0.61
I-205 Interchange – WB	2	0	0	0.40	0.03
I-205 to Ellsworth Road – WB	7	6	0	2.60	0.17
Ellsworth Road Interchange - WB	0	0	0	0.00	0.00
Ellsworth Road to Lieser Road - WB	4	1	0	1.00	0.12
Lieser Road Interchange – WB	5	1	0	1.20	0.87

1 Property damage only

2 Expressed as accidents per million annual VMT for roadway segments.

WSDOT has identified a number of high accident locations (HAL) along I-205 through its internal system planning. The four ramps at the interchange of I-205 and Mill Plain Boulevard are all identified as HALs. The ramp from I-205 southbound to SR 14 eastbound is also identified as a HAL.

FUTURE (2025) BASELINE CONDITIONS

FUTURE BASELINE NETWORK

Transportation system changes assumed in the baseline future conditions analysis included those that are documented in existing regional transportation plans and policies. I-205 projects are excluded from baseline assumptions. Baseline assumptions are based on conceptual projects identified in:

- Metropolitan Transportation Plan (MTP) for Clark County, RTC, adopted 1996, subsequently amended in 1997 and 1998 and updated in 1999 to extend the 20-year planning horizon to year 2020. The MTP identifies projects to be programmed for funding in the Metropolitan Transportation Improvement Program (MTIP) for Clark County.
- The Washington State Highway System Plan 1999-2018 (HSP), WSDOT, 1998.
- Transit Development Plan 2000-2006, C-TRAN, 2000.

Specific transportation system capacity assumptions are presented in Technical Memorandum #2, Regional Travel Forecast Model (see Appendix F). The MTP forms the basis for transportation system improvements that were incorporated into the modeling and analysis effort. A summary of future baseline network improvements within the I-205 study area is presented in Table 4.5 (p. 19). A new interchange on I-205 at NE18th/NE28th Street was not incorporated into this baseline system analysis.

FUTURE TRAVEL PATTERNS

The interchanges with I-205 at Mill Plain Boulevard and SR 500 are significant to regional travel patterns. The substantial portion of trips accessing I-205 at these locations is interstate or regional trip. For example, 83 percent of PM peak hour traffic entering I-205 northbound at Mill Plain Boulevard is traveling north of SR 500 or using SR 500 to travel to points beyond the study area. Similarly 96 percent of AM peak hour traffic entering I-205 southbound at Mill Plain Boulevard crosses Glenn Jackson Bridge into Oregon. Using select link analysis and the RTC's travel demand forecast model, similar travel patterns were identified at each of the study area interchanges. Existing travel patterns are not forecast to change significantly by 2025.

Table 4.5 – Summary of Future Baseline Transportation System Improvements

Facility	Cross Street	Improvements / 2025 Baseline
SR-500	St. John's Road	Construct Interchange
SR-500	Falk Road / NE 42nd Ave	Grade Separation
SR-500	Stapleton Road / NE 54th Ave	Grade Separation
SR-500	Thurston Way	Construct Interchange
SR-500	Gher Road / NE 112th Ave	Construct Interchange
SR-500	Fourth Plain / SR-503	Flyover Ramp, WB Fourth Plain to SB SR-500
Padden Parkway	NE 94th Ave to SR-503	New Limited Access 4 Lane Road
Padden Parkway	SR-503 to Ward Road	New Limited Access 4 Lane Road
NE 164th Avenue	Mill Plain Blvd to SE 1st Street	Widen to 5 Lane Road
NE 162nd Avenue	SE 1st Street to SR-500	Widen to 5 Lane Road
Burton Road	Andresen Road to NE 18th Street	New 3 Lane Road
Burton Road/NE 28th Street	NE 86th Ave to NE 162nd Ave	Widen to 3 Lane Road
NE 18th Street	NE 105th Ave to NE 86th Ave	New 3 Lane Road
NE 18th Street	NE 105th Ave to NE 162nd Ave	Widen to 5 Lane Road
NE 192nd Avenue	SR-14 to SE 15th Street	New 5 Lane Road
NE 192nd Avenue	SE 15th Street to NE 18th Street	Widen to 5 Lane Road
Ellsworth Road	SE 10th Street to SR-14	Widen, 2 lanes each direction
NE 138th Avenue	NE 18th to NE 28th	Widen, 2 lanes each direction
NE 138th Avenue	NE 28th to NE 39th	Widen to 3 Lane Road
NE 137th Avenue	NE 39th to NE 49th	Widen to 3 Lane Road
NE 137th Avenue	NE 76th to NE 99th	New 3 Lane Road
Mill Plain Blvd.	SE 164th Ave to SE 172nd Ave	Widen to 5 Lane Road
Mill Plain Blvd.	SE 172nd Ave to SE 192nd Ave	New 5 Lane Road
SE 1st Street	SE 164th Ave to SE 192nd Ave	Widen to 3 Lane Road
SE 1st Street / Lake Road	SE 192nd to Lacamas Drive	Widen to 3 Lane Road
SE 7th Street	Chkalov Drive to SE 136th Ave	Widen to include center left turn lanes
SE 10th Street	Ellsworth Road to I-205	Widen, 2 lanes each direction
Fourth Plain Blvd.	NE 102nd Ave to SR-503	Widen to 5 Lane Road

FREEWAY OPERATIONS

The results of the HCM analysis of forecast traffic operations on I-205 for year 2025 are presented in the following sections. For this study, “deficiencies” are defined as those freeway segments or intersections operating at LOS E or F.

I-205 Freeway Levels of Service

Table 4.6 summarizes the results of 2025 baseline freeway operations analyses, and Table 4.7 summarizes the results of merge/diverge and weaving analyses and peak hour levels of service for the I-205 corridor. Review of Table 4.6 shows that three segments of I-205 within the study area are forecast to operate at LOS E or F:

- Southbound segment of I-205 south of SR 14 (LOS E during the AM peak hour).
- Northbound segment of I-205 south of SR 14 (LOS E during the PM peak hour).
- Northbound segment of I-205 north of Mill Plain Boulevard (LOS E during PM peak hour).

As shown in Table 4.7 (p. 21), seven locations are projected to operate below LOS D in the A.M. or the P.M. peak hour. These locations are as follows:

- I-205 northbound on-ramp from Mill Plain Boulevard (LOS F during PM peak hour).
- I-205 southbound on-ramp from SR 500 (LOS F during AM peak hour).
- I-205 northbound off-ramp to SR 500 (LOS F during PM peak hour).
- I-205 southbound off-ramp to Mill Plain Boulevard (LOS E during AM peak hour).
- I-205 northbound weaving section between SR 14 and mill Plain Boulevard (LOS E during PM peak hour).
- I-205 southbound weaving section between Mill Plain Boulevard and SR 14 (LOS F during the AM peak hour).
- I-205 southbound CD between SR 500 on/off ramps (LOS F during AM peak hour).

Table 4.6 – Summary 2025 Baseline Peak Hour Freeway Operations Analysis				
Freeway Section	AM Peak		PM Peak	
	LOS	Density (pc/mi/ln)	LOS	Density (pc/mi/ln)
SB I-205 North of SR 500 Interchange	B	15.5	B	11.2
NB I-205 North of SR 500 Interchange	A	9.3	B	14.2
SB I-205 South of SR 14 Interchange	E	39.2	C	18.6
NB I-205 South of SR 14 Interchange	B	13.1	E	39.2
SB I-205 SR 500 on ramp to Mill Plain off ramp	D	33.2	C	22.7
NB I-205 Mill Plain on ramp to SR 500 off ramp	C	18.5	E	36.9

Table 4.7 – Merge/Diverge & Weaving Levels of Service

Location	2025 Baseline Conditions					
	AM Peak			PM Peak		
	Computed Density	Computed ¹ Speed (mph)	LOS	Computed Density	Computed ¹ Speed (mph)	LOS
I-205 ON/OFF RAMP						
I-205/Mill Plain NB ramp (merge)	21.6	59.2	C	N.A.	N.A.	F
I-205/SR 500 NB Ramp (diverge)	10.3	58.1	B	N.A.	N.A.	F
I-205/SR 500 NB Ramp (merge)	17.3	59.6	B	26.3	57.9	C
I-205/SR 500 SB Ramp (diverge)	15.7	59.3	B	8.7	60.4	A
I-205/SR 500 SB Ramp (merge)	N.A.	N.A.	F	23.8	58.4	C
I-205/Mill Plain SB Ramp (diverge)	35.1	58.1	E	28.8	58.3	D
WEAVING SECTION						
I-205/Mill Plain –SR 14 NB Ramp	13.7	51.0	B	41.7	37.4	E
I-205/SR 500 NB ramp (cloverleaf)	25.8	19.7	C	33.3	18.9	D
I-205/SR 500 SB ramp (cloverleaf)	62.7	17.5	F	36.4	18.7	E
I-205/Mill Plain- SR 14 SB ramp	51.3	38.03	F	27.0	45.9	C

¹Space mean speed for all vehicles;

N.A. = Traffic volumes for merge/diverge area exceed junction capacity. Density and speed are not calculated.

2025 ARTERIAL STREET AND INTERSECTION TRAFFIC OPERATIONS

The intersections analyzed and their lane configurations are shown in Appendix H.

Unsignalized Intersections

Table 4.8 (p. 22) shows the results of the future baseline AM and PM peak hour level of service analysis for study area intersections. Of the five unsignalized intersections, three would have movements operating at LOS E or F during one or both peak hours:

- Ellsworth Road /SR 14 eastbound off-ramp;
- Leiser Road./SR 14 eastbound ramps;
- Burton Road/NE 109th Avenue.

The poor levels of service at the unsignalized intersections can be attributed to heavy traffic volumes in the future baseline condition. It is likely that many of these intersections would be signalized as part of short-term intersection improvement projects as unsatisfactory levels of service and congestion develop prior to the year 2025.

Signalized Intersections

Table 4.8 also shows that 11 of the 17 signalized intersections analyzed for the Baseline condition are forecast to operate at levels of service E or F during one or both peak hours. In fact, most of the major corridors within the study area are forecast to experience significant congestion problems in the 2025 baseline condition in the AM and PM peak hours.

Table 4.8 – 2025 Intersection Levels of Service

2025 Baseline								
#	Intersection	Control Type	AM Peak			PM Peak		
			LOS	Delay (s)	V/C	LOS	Delay (s)	V/C
1	Gher/Fourth Plain	Signal	D	36.4	0.76	F	165.5	1.14
2	Padden/NE 94 th Ave.	Signal	E	60.1	0.90	E	60.3	0.87
3	Padden/NE 117 th (SR 503) ¹	Signal	F	90.4	0.89	F	93.5	0.96
4	NE 112 th /NE 28 th St	Signal	E	62.4	0.92	F	100.1	0.99
	Mitigated Improvements ²	Not Analyzed in 2025 Baseline Scenario						
5	NE 112 th /49 th St.	Signal	F	250.0	1.40	F	173.6	1.21
6	Mill Plain/Chkalov	Signal	F	228.1	1.31	F	134.3	1.12
7	NE 112 th /NE 9 th Ave.	Signal	C	22.1	0.66	C	22.3	0.71
8	NE 112 th /NE 18 th St. ¹	Signal	F	119.5	1.01	F	159.8	1.17
	Mitigated Improvements ³	Not Analyzed in 2025 Baseline Scenario						
9	Mill Plain/NE 97 th St.	Signal	B	18.7	0.64	C	32.2	0.81
10	Mill Plain/NE 104 th Ave.	Signal	B	12.7	0.71	B	17.0	0.81
11	Mill Plain/NE 105 th Ave.	Signal	B	15.6	0.76	B	19.1	0.75
12	NE 18 th St./NE 97 th Ave. ¹	Signal	C	31.6	0.78	C	27.8	0.75
13	Burton Rd./NE 98 th Ave.	Signal	B	15.4	0.48	B	18.5	0.51
14	Padden/Andresen ¹	Signal	F	122.3	1.02	F	103.8	0.98
15	Ellsworth/SR14 EB Off Ramp	Stop Sign	B	10.9	0.14	F	474.4	2.01
		Signal	A	9.3	0.23	E	77.1	1.08
16	Ellsworth/SR14 WB On-Ramp ⁴	Left Turn	B	14.2	0.22	C	24.6	0.69
17	Mill Plain/I-205 SB Ramps	Signal	D	44.1	0.90	E	62.5	0.96
	Mitigated Improvements ⁵	Not Analyzed in 2025 Baseline Scenario						
18	Mill Plain/I-205 NB Ramps	Signal	F	183.0	1.23	F	200.6	1.33
19	NE 18 th /I-205 NB Off Ramp	Does Not Exist in 2025 Baseline Scenario						
20	NE 18 th /I-205 SB On Ramp	Does Not Exist in 2025 Baseline Scenario						
21	Padden/I-205 SB Off Ramp	Signal	F	84.1	1.04	F	85.5	1.05
22	Padden/I-205 NB Ramps	Stop Sign	B	13.5	0.03	C	17.2	0.13
		Signal	A	5.7	0.67	A	5.7	0.67

Table 4.8 – 2025 Intersection Levels of Service

2025 Baseline								
#	Intersection	Control Type	AM Peak			PM Peak		
			LOS	Delay (s)	V/C	LOS	Delay (s)	V/C
23	Leiser Rd./SR 14 EB Ramps	Stop Sign	F	50.4	0.58	F	>500	8.71
		Signal	B	15.1	0.40	C	28.1	0.77
24	Leiser Rd./SR 14 WB Ramps	Stop Sign	B	14.7	0.52	D	27.5	0.73
		Signal	C	24.7	0.78	C	22.4	0.78
25	Burton/I-205 NB On Ramp	Does Not Exist in 2025 Baseline Scenario						
26	NE 112 th /I-205 Flyover	Does Not Exist in 2025 Baseline Scenario						
27	Burton/I-205 SB Off Ramp	Does Not Exist in 2025 Baseline Scenario						
28	NE 112 th /SR 500 SPUI	Not Analyzed in 2025 Baseline Scenario						
29	Burton/NE 109 th St.	Stop Sign	D	30.7	0.38	E	45.1	0.51
		Signal	A	9.6	0.65	B	11.2	0.68
	Mitigated Improvements ⁶	Not Analyzed in 2025 Baseline Scenario						

¹ Assumed geometry based upon planned improvements outlined in 'HDR Technical Memorandum 3: 2020 Baseline Transportation Conditions'.

² Right turn lane added to south approach.

³ Right turn lane added to all approaches, additional left turn lanes added to all approaches.

⁴ Delay occurs from NB left turns yielding to oncoming traffic.

⁵ Additional left turn lane added to north approach.

⁶ Left turn bay added to west approach, direction separation of right/left shared lane on north approach.

Policy Point 5 – Access Connections and Design

Will the proposal provide fully directional interchanges connected to public roads, spaced appropriately, and designed to full design level geometric control criteria?

The recommended alternative provides for fully directional access between I-205 and public roads via interchanges and collector-distributor roads, connected to public roads. The design of the recommended alternative accommodates spacing requirements and constraints and meets geometric standards

DIRECTIONALITY

The recommended alternative features added access that provides a full interchange consisting of a split diamond with ramps for all directional traffic movements. The south half of the diamond connects I-205 to NE 18th Street; a one-way couplet connects the south half of the interchange to the north half; and the north half of the diamond connects to NE 28th Street/NE Burton Road.

In addition to the new added access, access to I-205 is modified in seven (7) other locations:

NORTHBOUND (NB) I-205

- NB I-205 access to Mill Plain Blvd. is relocated on I-205 to the south.
- SR 14 access to NB I-205 is relocated on I-205 to the north.
- Mill Plain Boulevard to northbound I-205 is relocated to the north.
- NB I-205 to SR 500 access is relocated on I-205 to the south.

SOUTHBOUND (SB) I-205

- SR 500 to SB I-205 access is relocated on I-205 to the south
- SB I-205 to Mill Plain Blvd. access is relocated on I-205 to the north
- Mill Plain Blvd. to SB I-205 access is relocated on I-205 to the south
- SB I-205 to SR 14 access is combined with the modified SB I-205 to Mill Plain Blvd. access

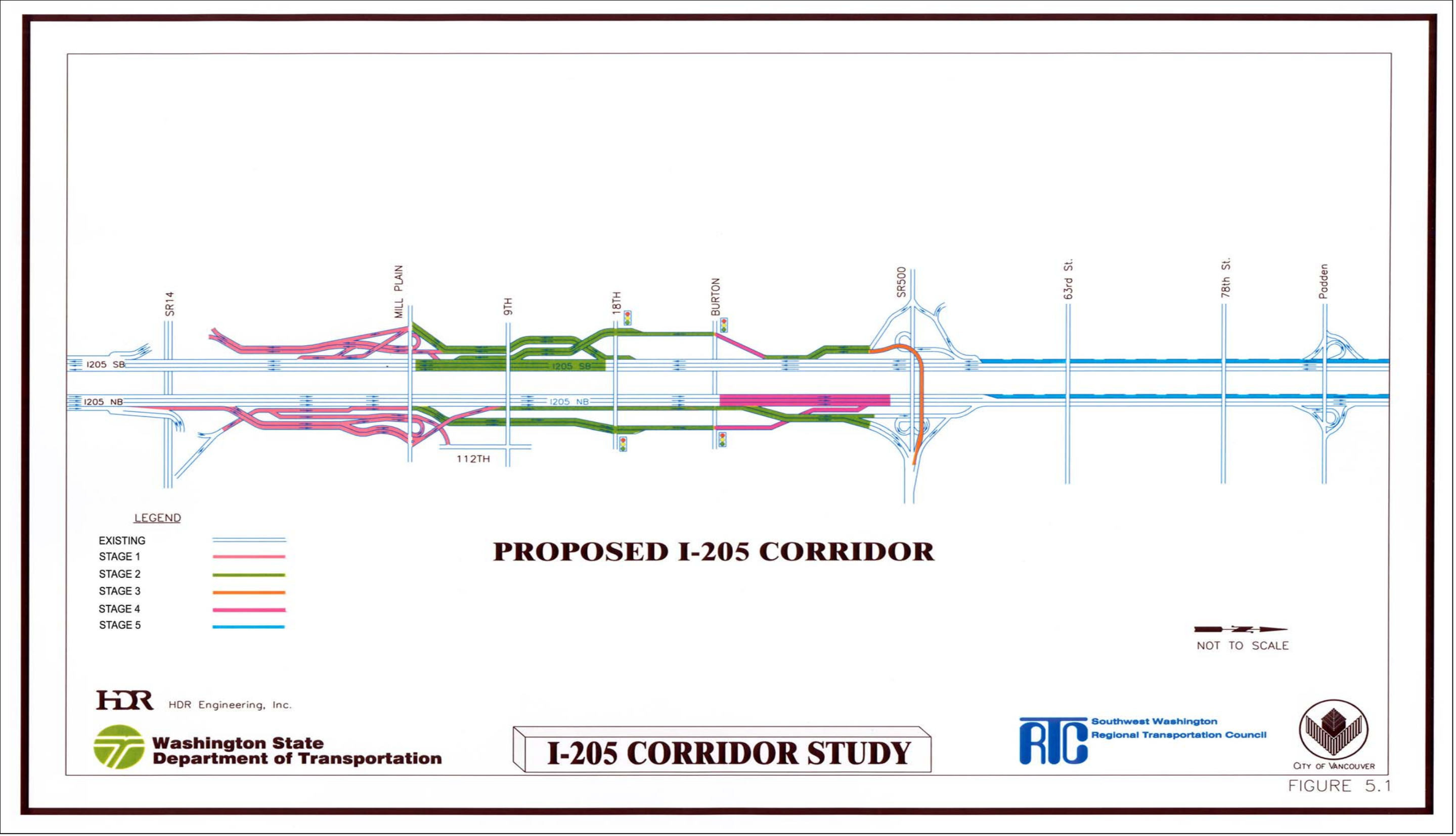
These completed modifications would maintain all directional traffic movements for the associated interchanges. These access point revisions are illustrated schematically in Figure 5.1 (p. 25).

CONNECTIONS

Proposed connections are to public highways and roadways. The new split diamond interchange would provide connections to 18th Street and 28th Street/Burton Road; both roadways are maintained by the City of Vancouver. Existing access points that would be modified also provide connections to public highways and roads.

DESIGN STANDARDS

Conceptual design of the proposed improvements follows the procedures outlined in WSDOT *Design Manual*, and has been developed to meet or exceed current full design levels. Interchange spacing is consistent with design standards, based on *Design Manual* Chapter 940, Figure 940-5 minimal ramp terminal spacing.



The following design assumptions have been made to establish the interchange geometry:

- I-205 (mainline) design speed of 70 mph, based on *Design Manual* Chapter 440, Figure 440-3 for Interstate (Design Class I-1) urban.
- Freeway ramp design speed of 60 mph, based on *Design Manual* Chapter 940, Figure 940-1 for 70 mph mainline speed.
- Collector-distributor roadway design speeds of 60 mph, based on *Design Manual* Chapter 940, Figure 940-1 for 70 mph mainline speed.
- Maximum ramp and collector-distributor grades are 3%, except one-way down grades maximum ramp grades are 5%.
- Mainline lane widths are 12-foot with 10-foot right shoulder and 10-foot left shoulder, based on *Design Manual* Chapter 440, Figure 440-3 for (Design Class I-1) 6 lanes or more.
- Ramp width for 1-lane ramp of 15-foot travel way with 8-foot right shoulder and 2-foot left shoulder, and for 2-lane of 25-foot travel way with 8-foot right shoulder and 4-foot left shoulder, based on *Design Manual* Chapter 940, Figure 940-3.

Table 5.1 shows the number of lanes and traffic movements for the preferred alternative. Conceptual engineering drawings showing detailed information on proposed improvements and geometrics are presented in Appendices D and E.

Table 5.1 – Geometric Characteristics of the Recommended Alternative			
Access Point Revision	No. of Lanes	Ramp Connection Type	Horizontal Curvatures
NB I-205 to Mill Plain	2	Taper Off-Connection	2700' R
SR 14 to NB I-205	1	Parallel On-Connection	3000' R
NB I-205 to NE 18th St.	2	Taper Off-Connection	5000' R
Mill Plain Blvd. to NB I-205	1	Parallel On-Connection	6000' R
NB I-205 to SR 500	2	Taper Off-Connection	1100' R
NE 28th St. to NB I-205	1	Taper On-Connection	1° 09' A.P.
SR 500 to SB I-205	2	Taper On-Connection	685' R EB 1100' R WB
SB I-205 to Burton Road	1	Taper Off-Connection	None
SB I-205 to Mill Plain Blvd./ SR14	2	Taper Off-Connection	5000' R
NE 18th St. to SB I-205	2	Taper On-Connection	3000' R
Mill Plain Blvd. to SB I-205	2	Taper On-Connection	3000' R EB 2550' R WB

RAMP TERMINALS

Ramp terminals associated with the proposed new access points would meet WSDOT current state and local full design level geometric control criteria. Off –connections are consistent with design standards, based on Design Manual Chapter 940, Figure 940-12a (Single-Lane, Taper Type) or Figure 940-12d (Two-Lane Taper Type). On-connections are consistent with design standards, based on Design Manual Figure 940-9a (Single-Lane, Taper Type), Figure 940-9b (Single-Lane, Parallel Type, or Figure 940-9d (2-Lane, Taper Type).

Ramp terminals associated with revising existing access points would either meet the off- and on-connection requirements identified above, or Figure 940-13b (collector-Distributor Off Connections) and Figure 940-13c (Collector-Distributor On-Connections).

Policy Point 6 – Operational and Accident Analyses

How will the proposal affect safety and traffic operations now and for the next 20 years?

Based on analysis of the recommended alternative under 2025 conditions, all segments of I-205 are forecast to operate at improved levels of service compared to the 2025 Baseline conditions, with the exception of the southbound on-ramp from Mill Plain Boulevard to I-205. Operating conditions on this ramp are controlled by capacity constraints to the mainline and, in particular, traffic demand in excess of mainline capacity approaching and crossing the Glenn Jackson bridge into Oregon, which are not addressed by the recommended alternative.

The recommended alternative would be constructed through a staged implementation program. Analysis of the recommended alternative and its five-stage implementation assumed that the stages would be implemented in sequential order. Analysis has shown that, upon completion of each stage, traffic operating and safety conditions in the study area are improved, or in no case worsened, compared to the Baseline conditions. The improvements that comprise two of the stages (Stage 1 - the direct connector to NE 112th Avenue and Stage 5 - the addition of a third lane along I-205 between SR 500 and NE 83rd Street) can proceed independently at any point during the project implementation process.

TRAVEL DEMAND FORECASTS

The Regional Transportation Council developed traffic volumes along I-205 and study area roadways for the 2025 planning year horizon assuming implementation of the recommended alternative (see Appendix F, *Regional Travel Forecast Model*). The land use scenario was consistent with the 2025 Baseline Conditions forecasts, and was based on extrapolating county population and employment totals from 2020 to 2025. The regional EMME/2 travel demand model was run for the build-out of the recommended alternatives as well as for each stage in a staged implementation scenario. The initial 2025 traffic volume forecasts along I-205 produced unrealistically high traffic volumes along I-205 crossing the Glenn Jackson Bridge into and out of the study area. The model was rerun, constraining the capacity across the bridge to more reasonable levels. The travel demand forecasting methodology, procedures and assumptions are documented in Technical Memorandum #2 contained in Appendix F.

OPERATIONAL AND SAFETY ANALYSIS

The operational analysis of the recommended alternative was performed using the techniques provided in the Highway Capacity Manual. Analysis was performed for the existing and proposed ramps along I-205 in the study area, collector-distributor roadway systems, and key arterial intersections.

FREEWAY ANALYSIS

Mainline, merging, diverging, and weaving analyses were conducted using Highway Capacity Software 2000 (*HCS 2000*). Mainline freeway analyses were conducted at three sections of I-205 (northbound and southbound): in the proximity of the SR 14 interchange, Mill Plain interchange, and the SR 500 interchange. For year 2025, the analyses for Baseline and Build-Out scenarios were conducted.

Freeway traffic volumes were provided from RTC's Emme/2 model and are shown in Figures 6.1 to 6.1(E) on pages 32 to 37. The number of freeway lanes and the lengths of weaving sections, merges, and diverges for the build out scenario were determined from conceptual engineering drawings that are included in Appendix D of this report. Highway Capacity Manual guidelines were used to determine the lengths of the weaving/merging/diverging sections. The input parameters for merge and diverge traffic analyses are shown in Tables 6.01 and 6.02 on page 38.

INTERSECTION ANALYSIS

Twenty-nine (29) intersections located within the vicinity of the study area were analyzed. *Teapac Signal 2000, version 1.01* software was used to analyze the LOS and delay of the signalized intersections. Highway capacity software (*HCS 2000, Unsignalized*) was used to analyze the LOS and delay of unsignalized intersections. Intersection volumes were provided from RTC's Emme/2 model and are presented in Appendix H. Lane geometries used were provided from the city of Vancouver, RTC, and other sources; and they are also shown in Appendix H.

Intersections were analyzed for Baseline and Build-Out scenarios for year 2025. The intersection analysis worksheets are shown in Appendix H. Peak hour factor of 0.90 and truck percentage of 2% were utilized for all intersections under both scenarios. Optimal phasing for the signalized intersections was done with Signal 2000. Phasing was determined by choosing the optimal cycle length and sequence. Cycle lengths ranged from 90 to 150 seconds. Mitigation Improvements were provided for the following conditions:

1. LOS in 2025 Build Out was at least one letter worse than 2025 Baseline case
2. 2025 Build Out scenario was operating at LOS F and the difference in delay between 2025 Build Out and 2025 Baseline scenario was greater than 20 percent.

SAFETY ANALYSIS

As described previously in Section 4, northbound I-205 in the Mill Plain Boulevard interchange area exceeds both the WSDOT Southwest Region and statewide accident rate for state facilities, with an accident rate of 2.5 accidents per million vehicle miles traveled. These accidents are likely associated with the SR 14/Mill Plain Boulevard weave movement. Improvements proposed in the recommended alternative would eliminate these weaving movements by braiding the ramps between I-205 and Mill Plain Boulevard and I-205 and SR-14, thereby eliminating the potential for conflict.

Modifications to the I-205 interchanges in the study area, which include braiding ramps and lengthening transition areas, will reduce or eliminate weaving and the associated potential for conflict, thereby improving overall safety and operations along I-205 in the study area.

RESULTS

PROJECT BUILD OUT

Table 6.1 (p. 39) shows the results of the freeway segment level of service analysis. Review of Table 6.1 shows that, with build out of the recommended project alternative, I-205 mainline segments are expected to operate a level of service D or better throughout the study area with two exceptions. The segments of I-205 south of SR 14 in both the northbound and southbound directions are forecast to operate at capacity (LOS E). As described previously, unconstrained travel demand on I-205 across the Glenn Jackson bridge in 2025 is forecast to exceed the capacity of the bridge section. Therefore, to provide a more realistic representation of traffic volumes along I-205 through the study area, the volume of traffic assigned to the bridge segment of I-205 in the travel forecast model has been constrained to the capacity of the bridge. Compared to the Baseline conditions, operations along one segment of I-205 are forecast to improve with the recommended alternative. Operations along the

northbound I-205 between Mill Plain Road and SR 500 are estimated to improve from LOS E to LOS C with the recommended alternative.

Table 6.2 (p. 40) summarizes the results of the operational analysis of the ramps and collector-distributor systems along I-205, comparing the 2025 Baseline and Project Build Out conditions. Review of Table 6.2 shows that with implementation of the recommended alternative, the southbound on ramp from Mill Plain Boulevard to I-205 is projected to operate at LOS F during the AM peak hour. The LOS F operations of the Mill Plain Boulevard southbound on-ramp to I-205 are related to the lack of downstream capacity to receive the vehicles attempting to enter the traffic flow from Mill Plain. This in turn is due to the capacity constraints along I-205 crossing the Glenn Jackson Bridge. This condition exists in the Baseline scenario as well, where it is represented by LOS F operations along the weaving section of I-205 between Mill Plain Boulevard and SR 14.

The weaving section on southbound I-205 between SR 500 and Burton Road under the build scenario is forecast to operate at level of service E during the AM peak hour. This is an improvement to the existing southbound on-ramp from SR 500, which is forecast to operate at LOS F during the AM peak hour. This weaving condition would be eliminated and safety and overall operations in the section improved if the SR 500 southbound on-ramp to I-205 and the I-205 southbound off-ramp to Burton Road were braided.

The 2025 Build Conditions operations provide considerable improvement to LOS and safety compared to the Baseline conditions in which both the existing Mill Plain Boulevard and SR 500 interchanges (ramps and weaving sections) with I-205 are forecast to operate at level of service E or worse in the southbound direction during the AM peak hour and the northbound direction during the evening peak hour.

Table 6.3 (p. 41) summarizes the results of the analysis of arterial intersections levels of service. With implementation of the recommended project, there will be six new signalized intersections in the study area. They are:

- NE 18th Street/I-205 northbound off-ramp
- NE 18th Street/I-205 southbound on-ramp
- Burton Road/I-205 northbound on-ramp
- Burton Road/I-205 southbound off-ramp
- NE 112th Avenue/I-205 ramp
- NE 112th Avenue/SR 500 Single Point Urban Interchange (SPUI).

Review of Table 6.3 shows that 12 of 23 signalized intersections analyzed are forecast to operate at levels of service of E or worse during one or both peak hours under the build scenario. This compares to 11 of the 17 signalized intersections projected to operate at LOS E or worse in the 2025 baseline conditions. Compared to 2025 Baseline conditions, no deterioration in level of service is forecast at any of these intersections with the implementation of the recommended alternative.

STAGING ANALYSIS

The recommended alternative will be constructed through a staged implementation program (see Appendix A). Analysis of the recommended alternative and its staged implementation assumed that the stages would be implemented in sequential order. The analysis results presented below demonstrate that, upon completion of each stage, traffic-operating conditions in the study area are improved, or in no case worsened, compared to the Baseline conditions. If a stage is to be implemented out of sequence, additional analysis would be needed to verify that the modifications to the staging would not result in a deterioration in traffic operating conditions compared to Baseline conditions. The two exceptions are Stage 1A (the direct connector to NE 112th Avenue) and Stage 5 (the addition of a third lane in each direction along I-205 between SR 500 and NE 83rd Avenue). These improvements can proceed independently at any point during the project implementation process.

Operations analyses were performed for each stage of project implementation and the results were compared to the 2025 No Build condition. Tables 6.4 and 6.5 on pages 43 to 45 show the results of the operational analysis of the ramps and weaving sections along I-205, comparing the 2025 Baseline Condition with conditions under each stage of project implementation. Review of the tables shows that, with each stage of the project, operations along I-205 are improved or in no case worsened compared to the Baseline condition. Stage 1 improvements focus on the portion of I-205 between SR 14 and Mill Plain Boulevard, improving the northbound weaving section between SR 14 and Mill Plain, including an improved northbound on-ramp to I-205 from SR 14 and improvements to the I-205 northbound off-ramp to Mill Plain Boulevard. Upon completion of Stage 1 improvements, 3 segments are forecast to operate at level of service E or F during one of the peak hours:

- I-205 southbound on-ramp from SR 500 (AM peak hour LOS F).
- I-205 northbound off-ramp to SR 500 (PM peak hour LOS F).
- I-205 southbound off-ramp to Mill Plain Boulevard (AM peak hour LOS E).

This compares to seven segments operating at LOS E or F in the Baseline condition.

With completion of Stage 2 improvements, only the I-205 southbound on ramp from Mill Plain Boulevard is forecast to operate at LOS F during the AM peak hour. As described previously, the LOS F operations of the Mill Plain Boulevard southbound on-ramp to I-205 are related to the lack of downstream capacity to receive the vehicles attempting to enter the traffic flow from Mill Plain.

Upon completion of Stage 4, the I-205 southbound on-ramp weaving section from SR 500 is estimated to operate at LOS E during the AM peak hour. This weaving condition could be eliminated and operations in the section improved if the SR 500 southbound on-ramp to I-205 and the I-205 southbound off-ramp to Burton Road were braided. As project planning and design proceed and the timing of Stage 4 implementation is more precisely defined, additional updated analyses should be performed to validate the adequacy of the weaving segment geometrics and determine the need for braided ramps in this segment of I-205.

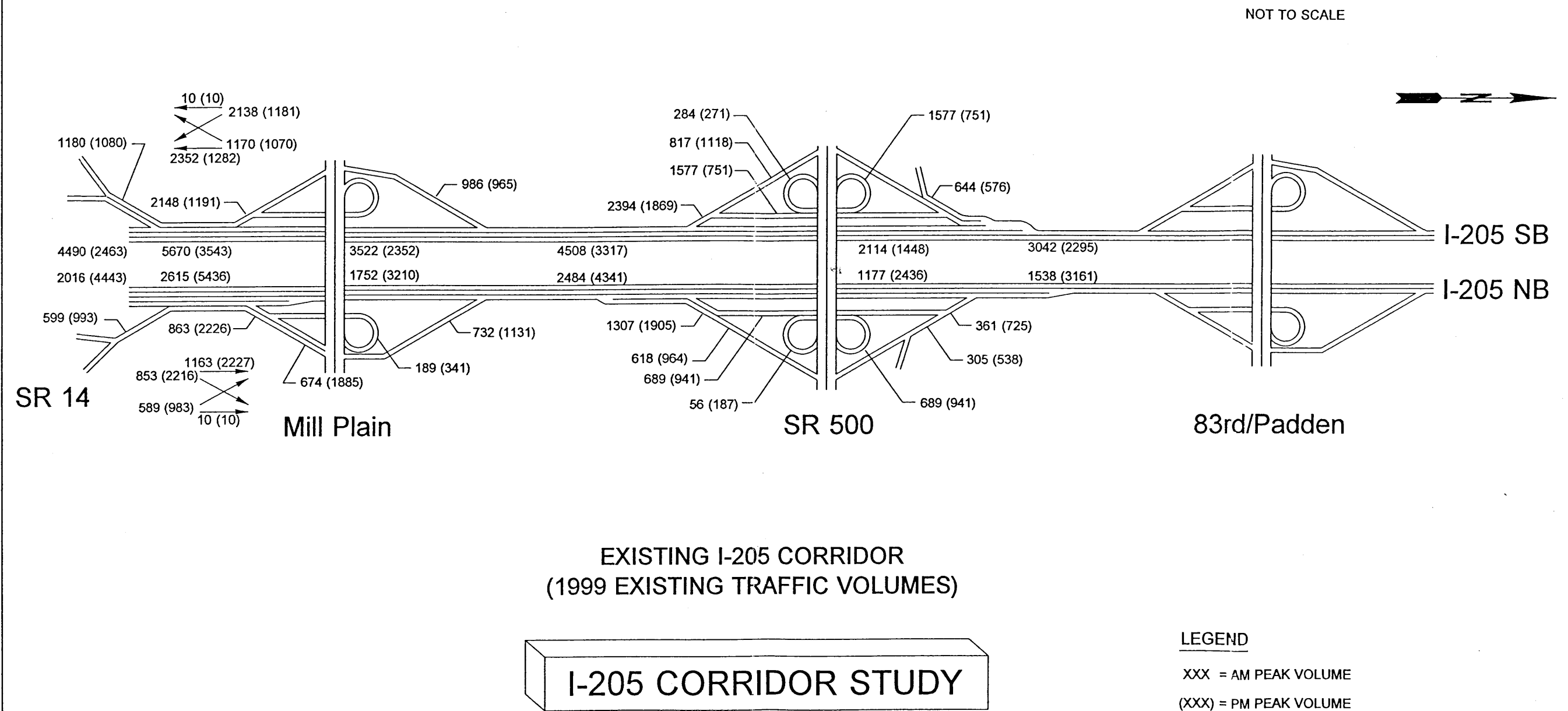
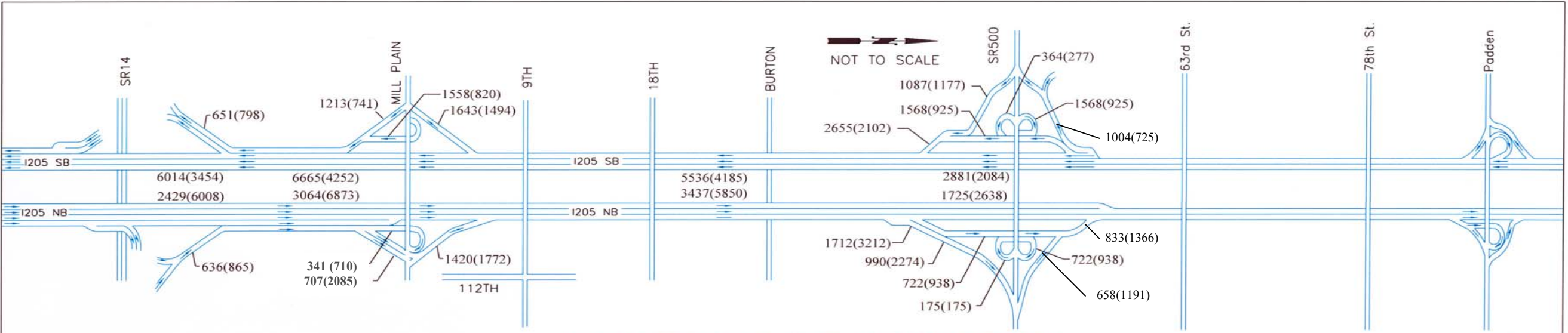
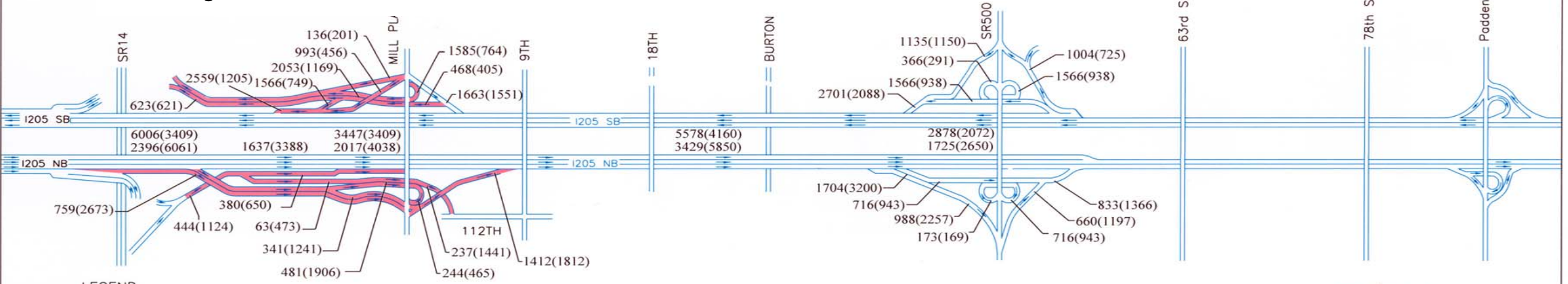


FIGURE 6.1



Note: See Fig. 6.1(D) and 6.1(E)
for weaving traffic volumes.



LEGEND
EXISTING
STAGE 1
AM PEAK VOL(PM PEAK VOL)

HDR HDR Engineering, Inc.

Washington State
Department of Transportation

I-205 CORRIDOR STUDY

RTC Southwest Washington
Regional Transportation Council

CITY OF VANCOUVER

FIGURE 6.1(A)

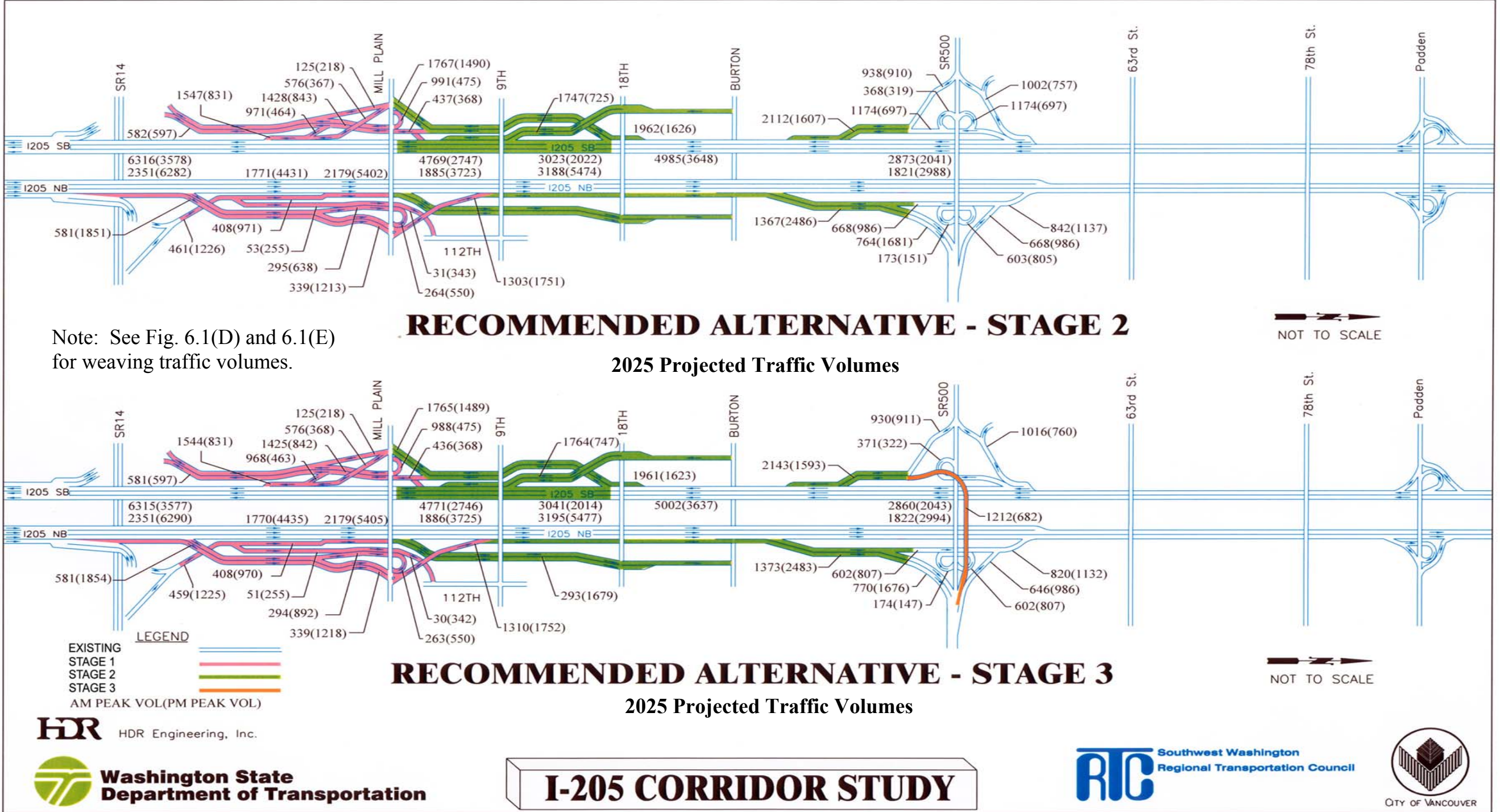


FIGURE 6.1(B)

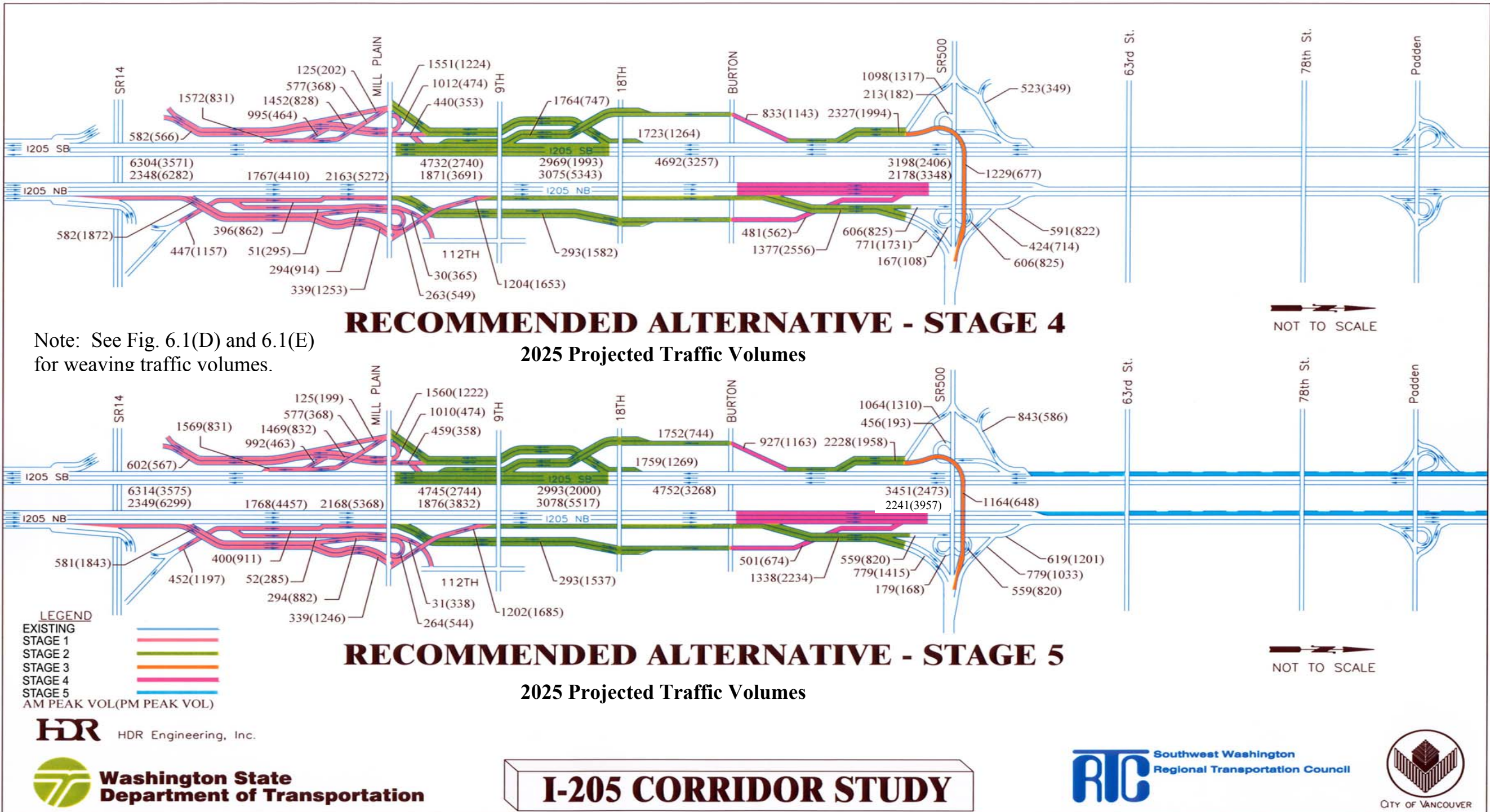
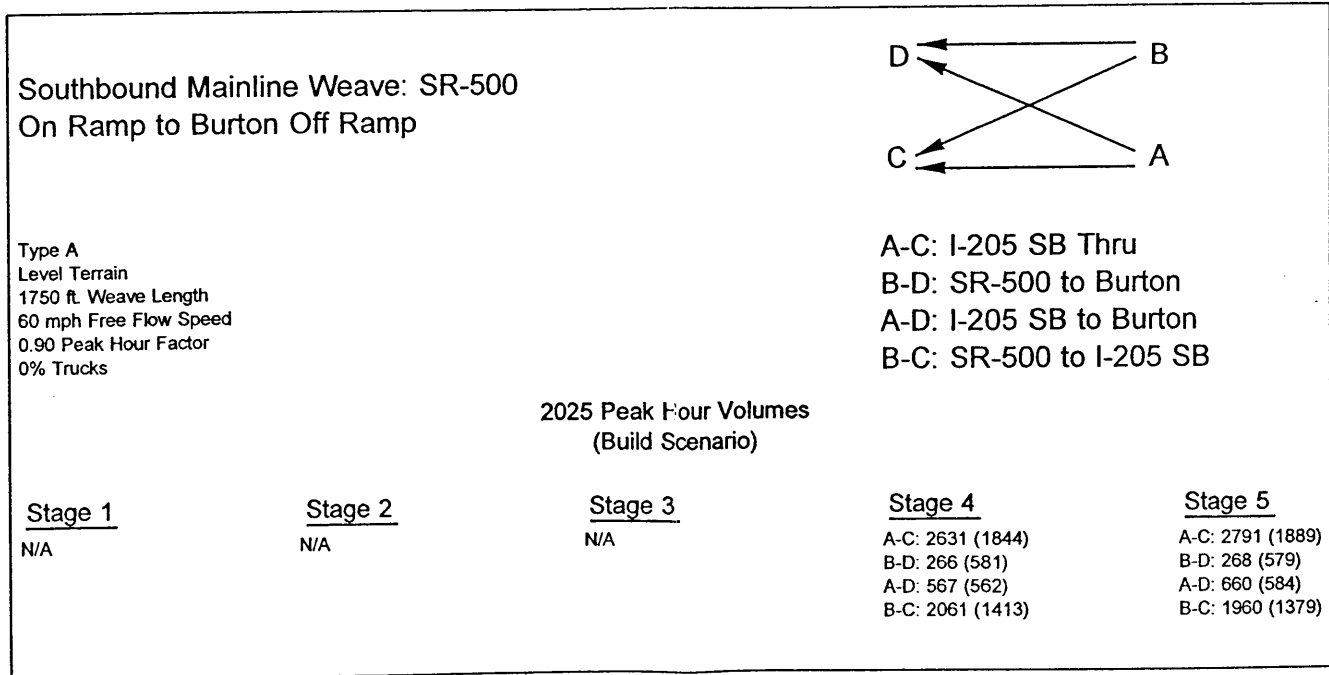
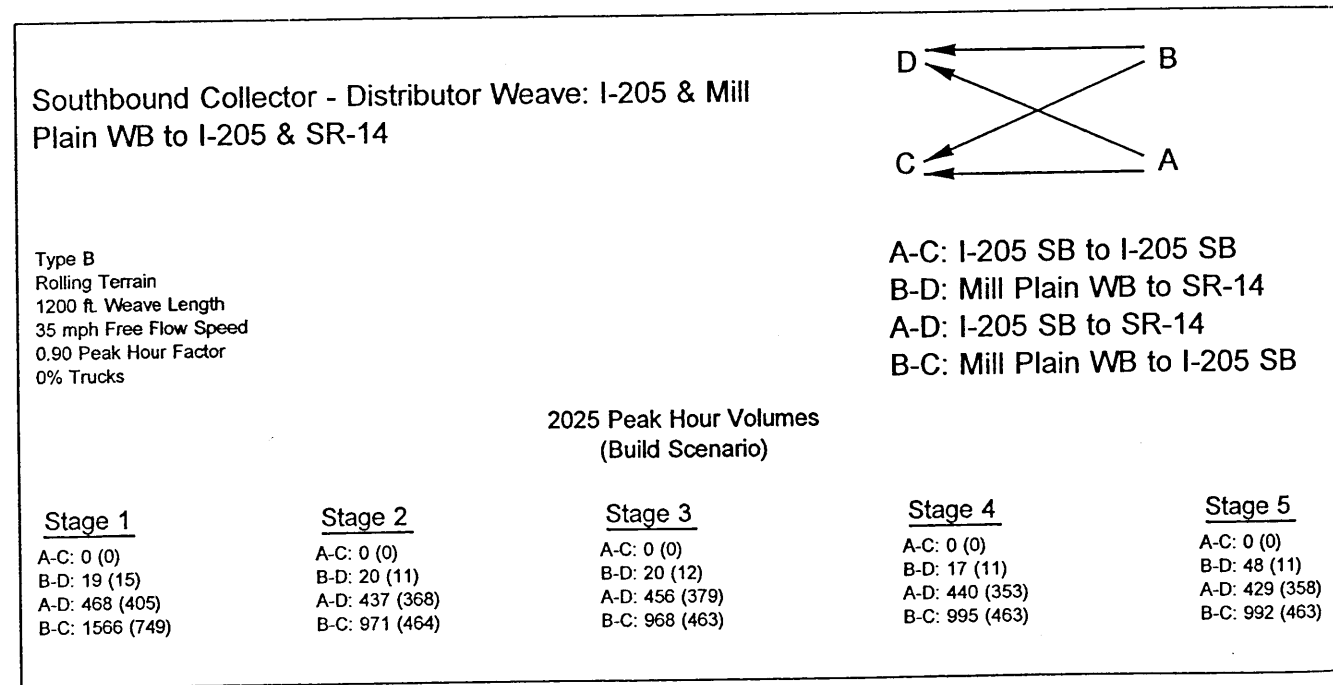
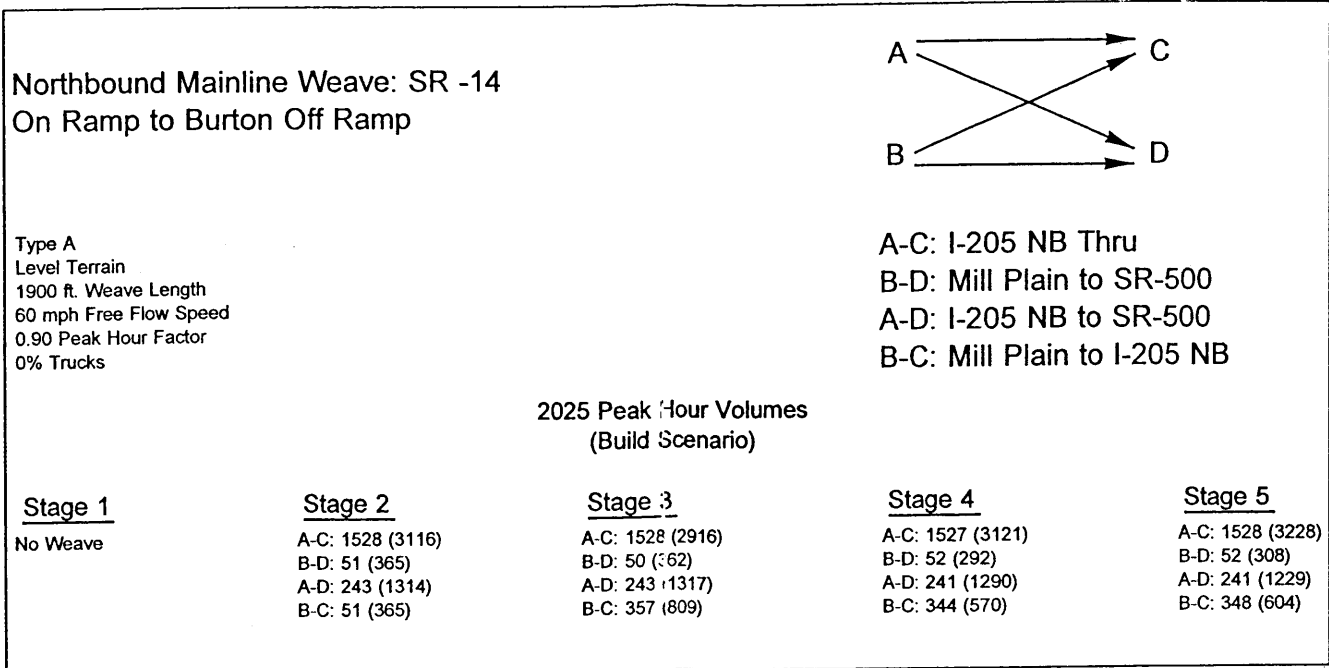
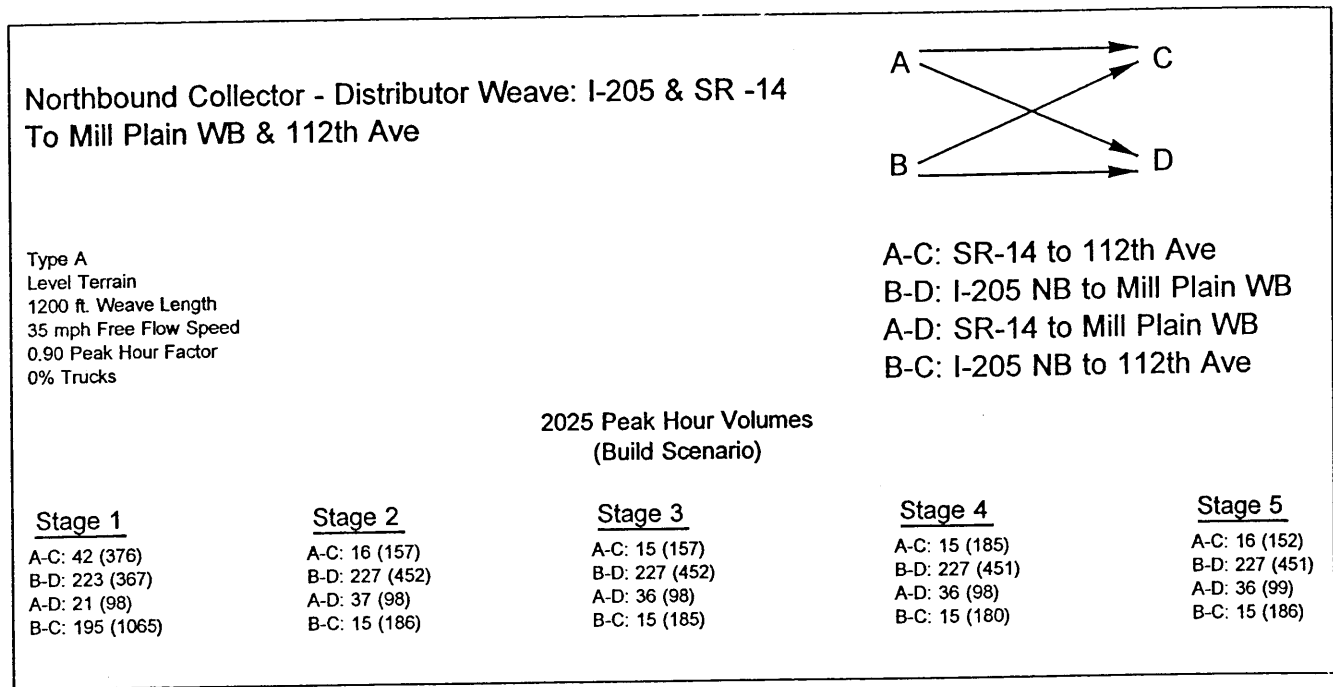


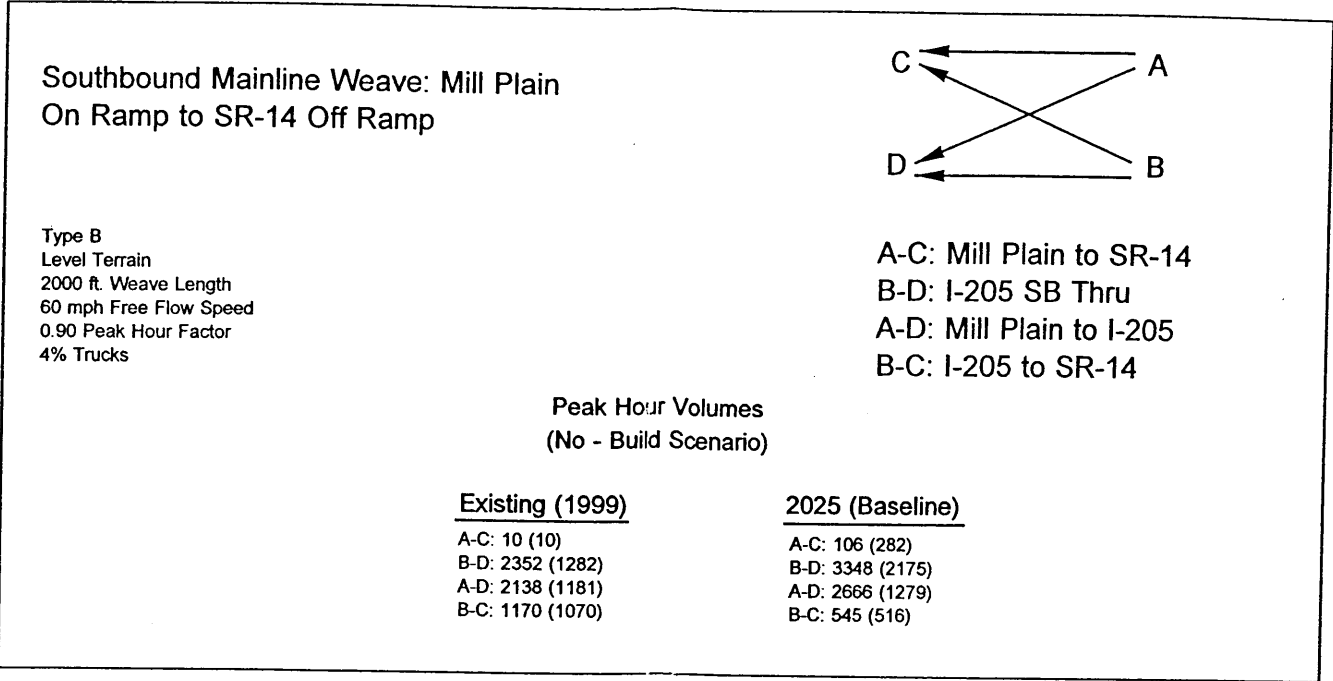
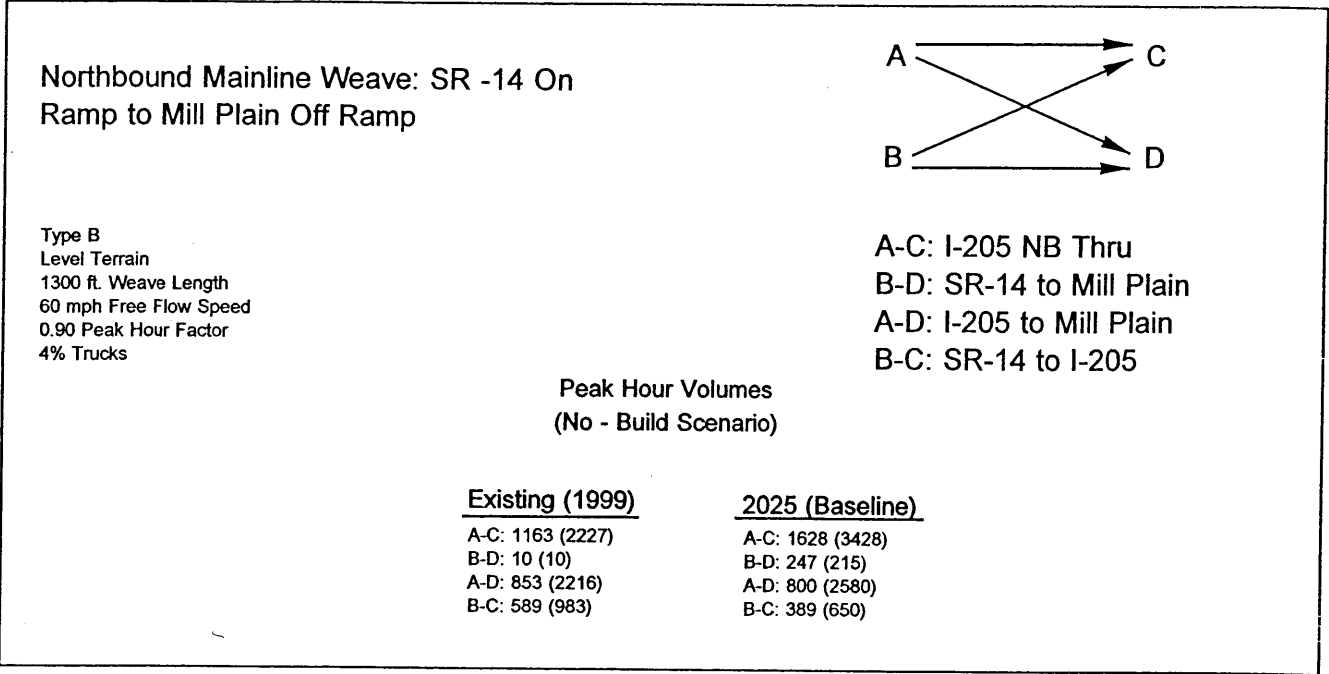
FIGURE 6.1(C)



WEAVING TRAFFIC VOLUMES
FIG. 6.1(D)

I-205 CORRIDOR STUDY

LEGEND
XXX = AM PEAK VOLUME
(XXX) = PM PEAK VOLUME



WEAVING TRAFFIC VOLUMES
FIG. 6.1(E)

I-205 CORRIDOR STUDY

LEGEND
XXX = AM PEAK VOLUME
(XXX) = PM PEAK VOLUME

I-205 STRATEGIC CORRIDOR PRE-DESIGN STUDY

Table 6.01 - Input Parameters Used for Merge and Diverge Analyses (Present Year and 2025 Baseline)

Location Description	Freeway		Ramp		Free Flow Speed (mph)		Accel. Lane (ft)		Decel. Lane (ft)	
	PHF	Truck %	PHF	Truck %	Freeway	Ramp	#1	#2	#1	#2
I-205 Northbound On-ramp from Mill Plain	0.9	4	0.9	0	65	45	1000			
I-205 Southbound Off-ramp to Mill Plain	0.9	4	0.9	0	65	45			525	
I-205 Northbound On-ramp from SR 500	0.9	4	0.9	0	65	45	625			
I-205 Southbound On-ramp from SR 500	0.9	4	0.9	0	65	45	475	500		
I-205 Northbound Off-ramp to SR 500	0.9	4	0.9	0	65	45			1000	0
I-205 Southbound Off-ramp to SR 500	0.9	4	0.9	0	65	45			350	900

Table 6.02 - Input Parameters Used for Merge and Diverge Traffic Analyses (2025 Build Scenario)

Location Description	Freeway		Ramp		Free Flow Speed (mph)		Accel. Lane (ft)		Decel. Lane (ft)	
	PHF	Truck %	PHF	Truck %	Freeway	Ramp	#1	#2	#1	#2
I-205 Northbound On-ramp from SR 14	0.9	4	0.9	0	60	45	800			
I-205 Northbound On-ramp from Mill Plain	0.9	4	0.9	0	60	45	1000			
I-205 Northbound Off-ramp to Mill Plain	0.9	4	0.9	0	60	35			500	0
I-205 Southbound On-ramp Mill Plain	0.9	4	0.9	0	60	35	750	2050		
I-205 Southbound Off-ramp to Mill Plain	0.9	4	0.9	0	60	45			1850	
I-205 Northbound On-ramp from Burton	0.9	4	0.9	0	60	35	800			
I-205 Southbound On-ramp from Burton	0.9	4	0.9	0	60	35	700	2200		
I-205 Northbound On-ramp from SR 500	0.9	4	0.9	0	65	45	625			
I-205 Southbound Off-ramp to SR 500	0.9	4	0.9	0	65	45			350	900

Parameters were utilized for both AM and PM peak hour analyses.

All terrain types were assumed level.

Table 6.1 – 2025 Mainline Levels of Service								
Freeway Section	2025 Baseline				2025 Build			
	AM Peak		PM Peak		AM Peak		PM Peak	
	LOS	Density (pc/mi/ln)	LOS	Density (pc/mi/ln)	LOS	Density (pc/mi/ln)	LOS	Density (pc/mi/ln)
SB I-205 North of SR 500 Interchange	B	15.5	B	11.2	C	18.6	B	13.3
NB I-205 North of SR 500 Interchange	A	9.3	B	14.2	B	12.1	C	19.4
SB I-205 South of SR 14 Interchange	E	39.2	C	18.6	E	44.2	C	19.3
NB I-205 South of SR 14 Interchange	B	13.1	E	39.2	B	12.7	E	44.0
SB I-205 SR 500 on ramp to Mill Plain off ramp	D	33.2	C	22.7	D	26.4	B	17.6
NB I-205 Mill Plain on ramp to SR 500 off ramp	C	18.5	E	36.9	B	12.5	C	22.5

Table 6.2 – 2025 Conditions Operational Analysis

Table 6.2 – 2025 Conditions Operational Analysis												
Location	2025 Baseline						2025 Build					
	AM Peak			PM Peak			AM Peak			PM Peak		
	Computed Density	Computed ¹ Speed (mph)	LOS	Computed Density	Computed ¹ Speed (mph)	LOS	Computed Density	Computed ¹ Speed (mph)	LOS	Computed Density	Speed (m)	LOS
RAMPS												
NB On-Ramp from Mill Plain	21.6	59.2	C	N.A.	N.A.	F	Auxiliary Lane Added. No LOS methodology in HCM.					
SB On-Ramp from Mill Plain	Part of Weaving Section in 2025 No Build Condition						N.A.	N.A.	F	3.2	5	A
SB On-Ramp from SR 500	N.A.	N.A.	F	23.8	58.4	C	Part of Weaving Section in 2025 Build Condition					
NB Off-Ramp to SR 500 ²	10.3	58.1	B	N.A.	N.A.	F	9.5	N/A	A	17.0	N/A	B
SB Off-Ramp to Mill Plain	35.1	58.1	E	28.8	58.3	D	0.6	54.8	A	<1.0	.2	A
NB On Ramp from SR 500	17.3	59.6	B	26.3	57.9	C	18.2	59.5	B	31.8	55.9	D
SB Off Ramp to SR 500	15.7	59.3	B	8.7	60.4	A	17.5	59.3	B	8.2	1	A
WEAVING SECTIONS												
Weaving Section: WB SR 500 east of I-205 Interchange	36.8	42.7	E	21.6	46.7	C	Not Analyzed in 2025 Build Condition					
Weaving Section: NB I-205 between SR 14 and Mill Plain	13.7	51.0	B	41.7	37.4	E	10.3	58.2	B	30.2	49.1	D
Weaving Section: SB I-205 between SR 14 and Mill Plain	51.3	38.03	F	27.0	45.9	C	Doesn't Exist in 2025 Build Condition					
Weaving Section: SB I-205 between SR 500 and Burton	Doesn't Exist in 2025 No Build Condition						42.6	37.0	E	30.2	40.7	D
COLLECTOR-DISTRIBUTOR ROADS												
Weaving Section: SB On/Off Ramps at SR 500	62.7	17.5	F	36.4	18.7	E	Doesn't Exist in 2025 Build Condition					
Weaving Section: NB On/Off Ramps at SR 500	25.8	19.7	C	33.3	18.9	D	20.4	20.4	B	29.0	19.3	C
Weaving Section: SB I-205 On-Ramps from Mill Plain	Doesn't Exist in 2025 No Build Condition						30.6	26.6	C	15.9	1	B
Weaving Section: NB collector-distributor south of Mill Plain	Doesn't Exist in 2025 No Build Condition						4.2	39.1	A	14.0	35.3	B

¹ Space mean speed for all vehicles.

² Analyzed as Major Diverge in 2025 Build scenario.

N.A. = Traffic volumes for merge/diverge area exceed junction capacity. Density and speed are not calculated.

Table 6.3 – Intersection Level of Service

		2025 Build Out													
			AM Peak							AM Peak			PM Peak		
#	tion	Control Type	LOS	Delay (s)		LOS	Delay (s)		Control Type	LOS)	V/C	LOS)	V/C
1	Gher/Fourth Plain	Signal	D		0.7	F	165.5	1	Signal	D	4	0.75		167.0	1.14
2	Padden/ 94 th Ave.	Signal	E	60.1	0.90	E	60.3	0.87	Signal	E	57.6	0.89	E	63.4	0.93
3	Padden/117 th (SR 503) ¹	Signal	F	90.4	0.89	F	93.5	0.96	Signal	F	83.2	0.87	F	90.7	0.95
4	112 th /NE 28 th St	Signal	E		0.92	F		0.99	Signal	E	69.7	0.84	F	113.8	1.03
	Mitigated Improvements ²	Not A							Signal	E	72.5	0.83	F	92.7	0.96
5	112 th /49 th St.	Signal	F	2	1.	F	1	1	Signal	F	217.3	1.33	F	180.6	1.20
6	Mill Plain/Chkalov	Signal	F	2	1.3	F	1	1	Signal	F		0.94	F		1.01
7	112 th /9 th Ave.	Signal	C		0.66	C		0.71	Signal	C		0.58	C		0.64
8	112 th /18 th St. ¹	Signal	F	1	1.0	F	1	1	Signal	F		1.37	F		1.53
	Mitigated Improvements ³	Not Anal in e S io							Signal	F		0.91	F		0.99
9	Mill Plain/ 97 th St.	Signal	B	18.7	0.64	C	32.2	0.81	Signal	B	18.1	0.64	C	24.3	0.72
10	Mill Plain/104 th Ave.	Signal	B	12.7	0.7	B		0	Signal	B	13.3	0.72	B	17.2	0.82
11	Mill Plain/105 th Ave.	Signal	B		0.7	B		0	Signal	A		0.63	B		0.71
12	18 th St./97 th Ave. ¹	Signal	C		0.78	C		0.75	Signal	C		0.65	C		0.60
13	Burton Rd./98 th Ave.	Signal	B		0.	B		0	Signal	B	15.8	0.54	B	15.4	0.56
14	Padden/Andresen ¹	Signal	F		1.02	F	103.8	0.98	Signal	F	123.2	1.03	F	112.1	1.01
15	Ellsworth/SR14 EB Off Ramp	Stop Sign	B	10.9	0.14	F	474.4	2.01	Stop Sign	B		0.24	F		1.51
		Signal	A	9.3	0.23	E	77.1	1.08	Signal	B	11.3	0.26	C	25.4	0.85
16	Ellsworth/SR14 WB On-Ramp ⁴	Left Turn	B	14.2	0.2	C		0	Left Turn	B	12.9	0.15	A	8.8	0.04
17	Mill Plain/I-205 SB Ramps	Signal	D		0.9	E		0	Signal	D		0.88	D		0.92
	Mitigated Improvements ⁵	Not A							Signal	D		0.88	D		0.92
18	Mill Plain/I-205 NB Ramps	Signal	F	183.0	1.23	F	200.6	1.33	Signal	E		0.96	F		1.10
19	18 th /I-205 NB Off Ramp	Does Not Exist in 2025 Baseline Scenario							Signal	D	39.6	0.81	D	48.3	0.91
20	18 th /I-205 SB On Ramp	Does Not Exist in 2025 Baseline Scenario							Signal	D	49.6	0.95	C	28.9	0.76
21	Padden/I-205 SB Off Ramp	Signal	F	84.1	1.04	F	85.5	1.05	Signal	D	46.4	0.98	D	44.8	0.98
22	Padden/I-205 NB Ramps	Stop Sign	B	13.5	0.03	C	17.2	0.13	Stop Sign	B	14.0	0.12	C	24.5	0.52
		Signal	A	5.7	0.67	A	5.7	0.67	Signal	A	5.5	0.60	B	12.5	0.78

Table 6.3 – Intersection Level of Service

		2025 Baseline							2025 Build Out						
		Control Type	AM			PM Peak			Control Type	AM			PM Peak		
	Intersection		LOS		V/C	LOS		V/C		LOS		V/C	LOS		V/C
23	Leiser Rd./SR 14 EB Ramps	Stop Sign	F	50.4	0.58	F	>500	8.71	Stop Sign	D	29.5	0.42	F	>500	3.92
		Signal	B	15.1	0.40	C	28.1	0.77	Signal	B	15.3	0.32	C	22.4	0.63
24	Leiser Rd./SR 14 WB Ramps	Stop Sign	B	14.7	0.52	D	27.5	0.73	Stop Sign	C	15.1	0.57	E	39.9	0.84
		Signal	C	24.7	0.78	C	22.4	0.78	Signal	C	26.5	0.79	B	18.4	0.72
25	Burton/I-205 NB On Ramp	Does Not Exist in 2025 Baseline Scenario							Signal	B	13.6	0.63	C	33.3	0.74
26	NE 112 th /I-205 Flyover	Does Not Exist in 2025 Baseline Scenario							Signal	B	15.0	0.78	C	33.6	0.95
27	Burton/I-205 SB Off Ramp	Does Not Exist in 2025 Baseline Scenario							Signal	C	21.7	0.67	C	20.8	0.70
28	NE 112 th /SR 500 SPUI	Not Analyzed in 2025 Baseline Scenario							Signal	D	44.6	0.83	D	45.2	0.88
29	Burton/109 th St.	Stop Sign	D	30.7	0.38	E	45.1	0.51	Stop Sign	F	63.6	0.70	F	308.9	1.37
		Signal	A	9.6	0.65	B	11.2	0.68	Signal	B	16.3	0.76	D	40.5	0.91
	Mitigated Improvements ⁶	Not Analyzed in 2025 Baseline Scenario							Signal	B	12.8	0.70	B	16.6	0.75

¹ Assumed geometry based upon planned improvements outlined in ‘HDR Technical Memorandum No. 3: 2020 - Baseline Transportation Conditions’.

² Right turn lane added to south approach.

³ Right turn lane added to all approaches, additional left turn lanes added to all approaches

⁴ Delay occurs from NB left turns yielding to oncoming traffic.

⁵ Additional left turn lane added to north approach.

⁶ Left turn bay added to west approach, direction separation of right/left shared lane on north approach

General Notes:

- Teapac Signal 2000 was used to analyze signalized intersections.
- Highway Capacity Software 2000 (HCS 2000) was used to analyze unsignalized intersections.
- Signalized intersections analyzed to operate with optimal cycle lengths ranging from 90 to 150 seconds and optimal sequences.- Stop Controlled intersections operating at LOS ‘E’ or lower also analyzed as signalized intersections.
- Peak hour factor of 0.90 and truck percentage of 2% were used for all intersections under baseline and build scenarios.
- Mitigation improvements were provided for the following conditions:
 - LOS in 2025 Stage 5 was at least one letter worse than 2025 Baseline case.
 - 2025 Build Out scenario was operating at LOS ‘F’ and the difference in delay between 2025 Build Out and 2025 Baseline scenario was greater than 20%.

Table 6.4 – Level of Service by Project Stage

	#	Location	AM Peak			PM Peak		
			Comput y	Computed Speed ¹	LOS	ed Density	Co Speed ¹	LOS
No Build	M-EX-2	Existing NB On Ramp from Mill Plain	21.6	59.2	C	N.A.	N.A.	F
	M-EX-3	Existing SB On Ramp from SR 500	32.3	52.2	F	23.8	58.4	C
	D-EX-1	Existing NB Off Ramp to SR 500	10.3	58.1	B	N.A.	N.A.	F
	D-EX-2	Existing SB Off Ramp to Mill Plain	35.1	62.4	E	28.8	63.1	D
	W-EX-1	Existing weaving section on NB I-205 between SR 14 and Mill Plain	13.7	51.0	B	41.8	37.4	E
	W-EX-2	Existing weaving section on SB I-205 between SR 14 and Mill Plain	51.3	38.0	F	27.0	45.9	C
Stage 1	M-S1-2	NB On Ramp from Mill Plain (Existing)	21.5	55.4	C	N.A.	N.A.	F
	M-S1-3	SB On Ramp From SR 500 (Existing)	32.6	51.9	F	23.6	58.4	C
	M-S1-4	Improved NB On Ramp from SR 14	12.1	56.4	B	23.4	54.9	C
	M-S1-5	Improved SB On Ramp from Mill Plain	N.A.	N.A.	F	3.6	57.7	A
	D-S1-1	NB Off Ramp to SR 500 (Existing)	10.3	58.1	B	N.A.	N.A.	F
	D-S1-2	SB Off Ramp to Mill Plain (Existing)	35.3	62.4	E	28.8	62.9	D
	D-S1-3	Improved NB Off Ramp to Mill Plain	6.6	57.5	A	29.2	53.2	D
Stage 2	M-S2-2	NB On Ramp from Mill Plain Auxiliary Lane Added ²	N/A	N/A	N/A	N/A	N/A	N/A
	M-S2-3	Improved SB On Ramp From SR 500	21.8	54.4	C	13.7	56.9	B
	M-S2-5	SB On Ramp from Mill Plain (Improvements in Stage 1)	N.A.	N.A.	F	3.2	57.5	A
	M-S2-6	New SB On Ramp from Burton, near 9 th	11.7	56.8	B	<1.0	58.2	A
	D-S2-1	Improved NB Off Ramp to SR 500 (Major Diverge) ³	9.8	N/A	A	16.9	N/A	B
	D-S2-2	Improved SB Off Ramp to Mill Plain	2.7	52.6	A	<1.0	53.3	A
	D-S2-3	NB Off Ramp to Mill Plain (Improvements in Stage 1)	5.2	58.5	A	24.0	55.3	C
	W-S2-1	Improved Weaving Section: NB I-205 near Mill Plain	10.4	58.0	B	30.8	48.6	D
Stage 3	M-S3-2	NB On Ramp from Mill Plain Auxiliary Lane Added ²	N/A	N/A	N/A	N/A	N/A	N/A
	M-S3-3	SB On Ramp From SR 500 (Improvements in Stage 2)	22.0	54.4	C	13.6	57.0	B
	M-S3-5	SB On Ramp from Mill Plain (Improvements in Stage 1)	N.A.	N.A.	F	3.2	57.5	A
	M-S3-6	SB On Ramp from Burton, near 9 th (Improvements in Stage 2)	11.6	56.8	B	<1.0	58.2	A
	D-S3-1	NB Off Ramp to SR 500 (Major Diverge) (Improvements in Stage 2) ³	9.9	N/A	A	16.9	N/A	B
	D-S3-2	SB Off Ramp to Mill Plain (Improvements in Stage 2)	2.8	54.4	A	<1.0	53.3	A
	D-S3-3	NB Off Ramp to Mill Plain (Improvements in Stage 1)	5.2	58.5	A	24.0	55.2	C
	W-S3-1	Weaving Section: NB I-205 near Mill Plain (Improvements in Stage 2)	10.4	58.0	B	31.8	47.1	D

Table 6.4 – Level of Service by Project Stage

	#	Location	AM Peak			PM Peak		
			Computed Densi	Computed Speed ¹	LOS	Computed Densi	Computed Speed ¹	LOS
Stage 4	M-S4-2	NB On Ramp from Mill Plain Auxiliary Lane Added ²	N/A	N/A	N/A	N/A	N/A	N/A
	M-S4-5	SB On Ramp from Mill Plain (Improvements in Stage 1)	N.A.	N.A.	F	3.2	57.5	A
	M-S4-6	SB On Ramp from Burton, near 9 th (Improvements in Stage 2)	11.7	56.8	B	<1.0	58.2	A
	M-S4-7	New NB On Ramp from Burton	13.2	56.1	B	19.5	55.3	B
	D-S4-1	NB Off Ramp to SR 500 (Major Diverge) (Improvements in Stage 2) ³	9.5	N/A	A	16.5	N/A	B
	D-S4-2	SB Off Ramp to Mill Plain (Improvements in Stage 2)	0.2	54.9	A	<1.0	54.2	A
	D-S4-3	NB Off Ramp to Mill Plain (Improvements in Stage 1)	5.2	58.4	A	24.1	55.2	C
	W-S4-1	Weaving Section: NB I-205 near Mill Plain (Improvements in Stage 2)	10.3	58.2	B	29.9	50.0	D
	W-S4-2	New SB I-205 weaving section: SR 500 to Burton	41.7	36.8	E	30.9	40.3	D
Stage 5	M-S5-2	NB On Ramp from Mill Plain Auxiliary Lane Added ²	N/A	N/A	N/A	N/A	N/A	N/A
	M-S5-5	SB On Ramp from Mill Plain (Improvements in Stage 1)	N.A.	N.A.	F	3.2	57.5	A
	M-S5-6	SB On Ramp from Burton, near 9 th (Improvements in Stage 2)	11.6	56.8	B	<1.0	58.2	A
	M-S5-7	NB On Ramp from Burton (Improvements in Stage 4)	13.6	56.1	B	23.0	54.8	C
	D-S5-1	NB Off Ramp to SR 500 (Major Diverge) (Improvements in Stage 2) ³	9.5	N/A	A	17.0	N/A	B
	D-S5-2	SB Off Ramp to Mill Plain (Improvements in Stage 2))	0.6	54.8	A	<1.0	54.2	A
	D-S5-3	NB Off Ramp to Mill Plain (Improvements in Stage 1)	5.2	58.5	A	23.9	55.3	C
	W-S5-1	Weaving Section: NB I-205 near Mill Plain (Improvements in Stage 2)	10.3	58.2	B	30.3	49.2	D
	W-S5-2	SB I-205 weaving section: SR 500 to Burton (Improvements in Stage 4)	42.6	37.0	E	30.2	40.7	D

¹ Space mean speed for all vehicles.

² Analyzed as freeway mainline section. See Table 6.1 for mainline LOS.

³ Level of service for major diverge areas were determined by using the worst LOS case from three scenarios: the freeway volumes entering the diverge area, the freeway volumes leaving the diverge area, and the volumes on the off ramp.

N.A. = Traffic volumes for merge/diverge area exceed junction capacity. Density and speed are not calculated.

Table 6.5 - Collector-Distributor Road Level of Service by Project Stage

			AM Peak			PM Peak		
			Comput (pc/	ty	Com Spe (m	L	Comp Den (pc/m	Com Spe (mp
No Build	500_SB	Existing weaving section: SB I-205 on and off ramps at SR 500	62.7	17.5	F	36.4	18.7	E
	500_NB	Existing weaving section: NB I-205 on and off ramps at SR 500	25.8	19.7	C	33.3	18.9	D
Stage 1	500_SB	Weaving section: SB I-205 on and off ramps at SR 500 (Existing)	62.7	17.5	F	37.4	18.6	E
	500_NB	Weaving section: NB I-205 on and off ramps at SR 500 (Existing)	25.1	19.8	C	33.2	18.9	D
	SB_MP	Improved weaving section: SB I-205 on ramps from Mill Plain	45.4	25.1	F	23.5	27.6	B
	NB_MP	Improved weaving section: NB I-205 off ramps to Mill Plain	7.3	36.2	A	43.5	24.3	F
Stage 2	500_SB	Weaving section: SB I-205 on and off ramps at SR 500 (Existing)	48.6	18.0	F	29.9	19.2	C
	500_NB	Weaving section: NB I-205 on and off ramps at SR 500 (Existing)	21.7	20.2	B	29.9	19.4	C
	SB_MP	Weaving section: SB I-205 on ramps from Mill Plain (Improvements in Stage 1)	29.7	26.7	C	16.1	29.0	B
	NB_MP	Weaving section: NB I-205 off ramps to Mill Plain (Improvements in Stage 1)	4.2	39.1	A	14.0	35.3	B
Stage 3	500_NB	Weaving section: NB I-205 on and off ramps at SR 500 (Existing)	21.7	20.2	B	27.8	19.4	C
	SB_MP	Weaving section: SB I-205 on ramps from Mill Plain (Improvements in Stage 1)	30.1	26.7	C	16.4	29.0	B
	NB_MP	Weaving section: NB I-205 off ramps to Mill Plain (Improvements in Stage 1)	4.1	39.1	A	14.0	35.3	B
Stage 4	500_NB	Weaving section: NB I-205 on and off ramps at SR 500 (Existing)	21.6	20.2	B	27.1	19.5	C
	SB_MP	Weaving section: SB I-205 on ramps from Mill Plain (Improvements in Stage 1)	30.2	26.6	C	29.1	15.8	B
	NB_MP	Weaving section: NB I-205 off ramps to Mill Plain (Improvements in Stage 1)	4.1	39.1	A	14.3	35.4	B
Stage 5	500_NB	Weaving section: NB I-205 on and off ramps at SR 500 (Existing)	20.4	20.4	B	29.0	19.3	C
	SB_MP	Weaving section: SB I-205 on ramps from Mill Plain (Improvements in Stage 1)	30.6	26.6	C	15.9	29.1	B
	NB_MP	Weaving section: NB I-205 off ramps to Mill Plain (Improvements in Stage 1)	4.2	39.1	A	14.0	35.3	B

¹ Space mean speed for all vehicles.

Policy Point 7 – Coordination

Are all coordinating projects and actions programmed and funded?

New access to I-205 between Mill Plain Boulevard and SR 500 is included in the financially constrained Metropolitan Transportation Plan (MTP) for Clark County. The I-205 connector to NE 112th Avenue is also included in the MTP and the City of Vancouver's 2002-2007 Transportation Improvement Program (TIP). Planned local system improvements have been integrated into the development and refinement of the proposed access and access modifications. These local system improvements are part of the future (2025) baseline condition. Also included in the 2002-2007 TIP is the widening of Burton Road/NE 28th Street to provide 3 lanes, with sidewalks and bike lanes, between Andresen Road and NE 142nd Avenue, and 5 lanes from just west of I-205 to NE 114th Avenue. Design of this segment is complete and construction is underway. Future plans call for widening to 3 lanes from NE 142nd Avenue to NE 162nd Avenue. The 2002-2007 City of Vancouver TIP also includes widening of NE 18th Street to 5 lanes, with sidewalks and bike lanes, between NE 97th Avenue and NE 138th Avenue. Funding for design and right-of-way acquisition is secured. The widening of NE 18th Street is planned to continue east from NE 138th Avenue to NE 162nd Avenue. In addition to providing for local circulation, these local arterial improvements are needed to support the development of the split diamond interchange and the redirection of traffic patterns and volume that would occur with the new interchange. This analysis also includes a significant arterial capacity project by Clark County (i.e., Padden Parkway) that will access I-205 at the existing 83rd Street interchange. When completed, the new parkway will provide adequate capacity and accessibility for the rapidly developing areas east of I-205.

Funds have not yet been committed for the entire recommended alternative. Although all of the improvements included in the recommended alternative are needed currently to address existing and forecast system deficiencies, a staging plan has been developed to provide a framework and prioritization for programming funds.

Policy Point 8 - Planning and Environmental Processes

What is the status of the proposal's planning and environmental processes?

The recommended alternative was subject to the preliminary environmental review documented in Technical Memorandum #6 – *Environmental Conditions and Processes* (Appendix G). The review utilized existing environmental and land use data, supplemented by informal coordination with environmental and natural resources agencies and field observations. Overall, the review:

- Documented environmental conditions and resources in the study area.
- Identified potential environmental effects of the Study's preferred alternative (including any potentially significant environmental impacts that could pose "fatal flaws" to the further development and/or implementation of the preferred alternative).
- Recommended further environmental compliance and planning procedures.

The study area for the environmental review was the I-205 corridor between the Glenn Jackson Bridge to the south and the NE 83rd Street/Padden Parkway interchange to the north. The study's preferred alternative is largely contained within the existing WSDOT right-of-way, so the lateral extent of the study area is approximately 1000 feet on either side of the existing right of way.

Washington's State Environmental Policy Act (SEPA) establishes rules for evaluating the potential environmental impacts of a proposal. The SEPA environmental checklist provides a standard format for documenting environmental conditions and potential effects. A SEPA checklist was addressed to provide WSDOT (as the lead state agency for the planning study) with a basis for determining the significance of the project and is included in Appendix G of this report.

Based upon the existing environmental information, a likely next step in this process would be the initiation of a draft Environmental Impact Statement for the comprehensive I-205 corridor improvements.

Coordination with local, state, and federal resource and regulatory agencies and completion of environmental permits and documents will be conducted throughout further project development.